MILITARY TRUCKS
ARCHIVE

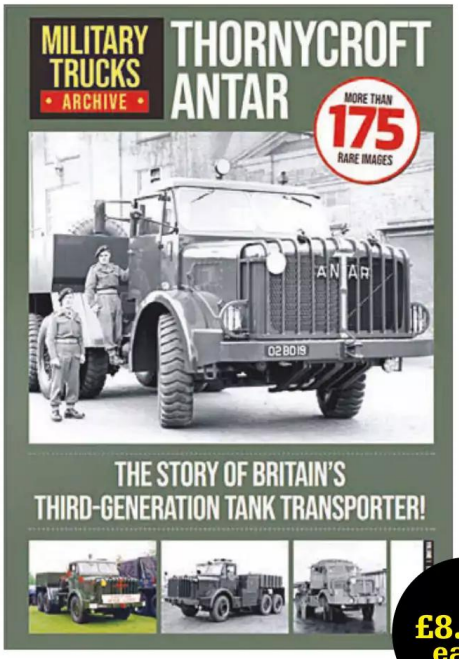
SCAMMELL COMMANDER

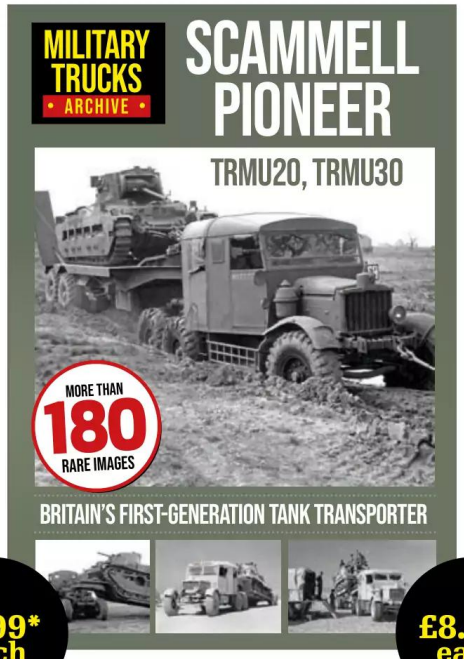
BRITAIN'S FOURTH-GENERATION TANK TRANSPORTER

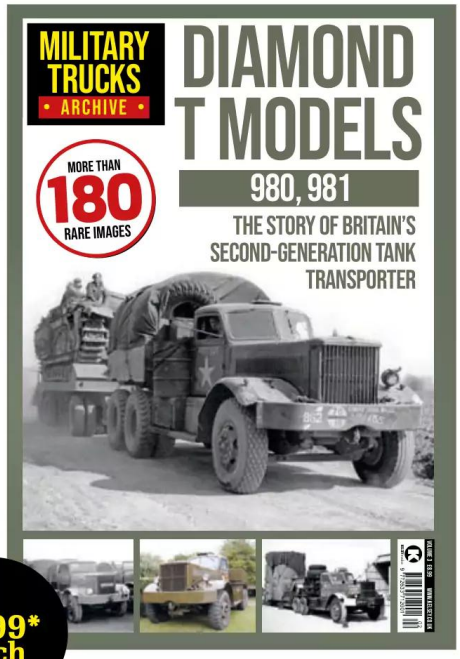
MORE THAN 185 RARE IMAGES

VOLUME 4 £8.99 WWW.KELSEY.CO.UK
KELSEYmedia 9 772633 712001 04

Also Available...







£8.99* each

£8.99* each

Vol 1: THE THORNYCROFT ANTAR
The Story of Britain's Third-Generation Tank Transporter

Entering service at the beginning of the fifties, the Antar was based on a commercial oilfield truck that just happened to be 'in the right place at the right time' and was pressed into military service! It proved to be enormously capable, eventually replacing the wartime Diamond T, and serving until the early 'eighties.

The first volume covers the story of Antar's early years, the development of three 'marks' of the military Antar, the Antar in service and the 'Mighty Antar' in private hands, with more than 175 rare images.

Vol 2: THE SCAMMELL PIONEER TRMU20/TRMU30
The Story of Britain's First-Generation Tank Transporter

Originally dating back to the late '20s, the Pioneer was probably Britain's earliest heavy tractor. It was originally designed for use in the oilfields of the Middle East, but was soon adopted by the British Army as a tank transporter. It was an enormously capable vehicle which, despite lacking front wheel drive, possessed the ability to press on almost regardless of terrain. Sadly, unable to keep pace with increases in the weight of armoured fighting vehicles, it was rendered obsolete by the appearance of the American Diamond T in 1942.

The story of the Pioneer's early years, the development of the military Pioneer as artillery tractors and recovery vehicles and the post-war years - heavy haulage and fairground users – as well as Pioneers in preservation – all told using more than 180 rare photographs and illustrations.

Vol 3: THE DIAMOND T MODEL 980, 981
The Story of Britain's Second-Generation Tank Transporter

A truck with almost everything... power, torque, reliability, and good looks! By the time production ended in May 1945, more than 2,000 had been delivered to the British Army. Even after deliveries of the Antar started in 1951, the Diamond T continued to provide valuable service, with some examples serving for another 30 years.

After being demobbed, many enjoyed equally-long second careers with heavy-haulage operators such as Wynns, who had 30, and Pickfords, who had 12, with plenty more in service up and down the land. These mighty trucks were often asked to move enormous, almost impossible, loads from factory to dockside or power station... on one occasion, a convoy of five Pickfords' Diamond Ts moved a gross load of 245 tons (250 tonne) from Sheffield to the Liverpool Docks.

And when this career came to a close, military-vehicle enthusiasts rushed to snap up the old warriors, restoring them to better-than-new condition.

Order online at
shop.kelsey.co.uk
Or call **01959 543 747**
Lines are open Monday to Friday 8.30am-5.30pm.
Calls are charged at your standard network rate.

Save 22% when you subscribe to the Military Trucks Archive for just £29.97* and have each copy delivered to your door (price includes postage).

*Price is for UK only. EUR and ROW single copy price is £10.99. For overseas subscription prices please visit website.
Savings are based on cover price. Subscribers receive four issues per year. For full terms and conditions visit shop.kesley.co.uk/terms

MILITARY TRUCKS ARCHIVE

CONTENTS

4 INTRODUCTION
The mighty Commander... Scammell and Thornycroft put their heads together!

8 ANTAR Mk 4 OR SCAMMELL CONTRACTOR?
The MoD asks Thornycroft and Scammell to come up with an upgraded Antar

28 WHAT NOW?
The cancellation of the Commander leaves the MoD and Scammell with a dilemma

32 RESURRECTION!
The Commander is reinstated... and this time it's serious

46 THE POWER AND THE GLORY
The Commander described in detail

66 BAOR, GULF WARS... AND THE FORMER YUGOSLAVIA
The Commander in service

92 PENSIONED-OFF
The Commander... and the Challenger 1... find a new life in the sun

98 THE FINAL WORD
The last chapter for Scammell, the closure of the Watford plant, and the demise of Unipower

SCAMMELL COMMANDER

● Factory-fresh Commander posing for an official photograph. Note the three rear-view mirrors on either side, essential for the driver to maintain all-round visibility on what is, by any measure, a huge truck.

Compiled and written by Pat Ware with source material and illustrations from the Warehouse Archive; other photographs as credited.

Designer: Mark Hyde
Digital image restoration: Lizzie Ware
Publisher: Paul Appleton
Marketing: Rebecca Gibson

Every effort has been made to trace copyright holders and to obtain permission to reproduce photographs; we would be pleased to rectify any omissions in subsequent editions of this publication should they be drawn to our attention.

Published by Kelsey Publishing Ltd, The Granary, Downs Court, Yalding Hill, Yalding, Kent, ME18 6AL
Telephone 01959 541444, Fax 01959 541400, www.kelsey.co.uk

Printed by Pensord Press Ltd, Tram Rd, Pontllanfraith, Blackwood NP12 2YA

© 2020. All rights reserved. Reproduction in whole or part is forbidden except with prior permission in writing from the Publisher.

The Publisher cannot accept responsibility for errors in articles or advertisements. The views expressed are not necessarily those of the Editor or Publisher.

KELSEY media

ISSN 2633712

Other volumes also available: visit shop.kelsey.co.uk for details

INTRODUCTION

The mighty Commander... Scammell and Thornycroft put their heads together!

The Commander was conceived during a period of political turmoil in Britain, and spent more than 16 years in development, before finally entering service in the early 'eighties. It was essentially a product of the Cold War, designed to position British armour along the frontline between East and West, but, unlike its predecessor, the Thornycroft Antar, the Commander was eventually called to action. However, that action was in the Middle East rather than Eastern Europe. Despite being equipped with tyres better suited to the roads of West Germany, and lacking any significant off-road capacity, the mighty Commander was given a chance to show what it was made of in the desert sands of Kuwait and Iraq during the first Gulf War. And if this wasn't proof enough of the Commander's fitness for service, in 1995, a number were shipped to Angola and to the former Yugoslavia where they served as part of the UN peace-keeping missions.

Entering service in 1984, with a mid-life rebuild following the punishing Gulf War, the Commander was the British Army's only heavy equipment transporter – or HET for short – for almost 20 years, before it was announced, in 2001, that it would be replaced by the Oshkosh M1070F.

The initial design work had started in 1968 at Thornycroft's Basingstoke plant, when the vehicle was being seen, effectively, as an Antar Mk 4. But the closure of Thornycroft's factory in 1969, combined with the transfer of the company's design staff to Scammell's Watford site, meant that, when the Commander finally went into production in 1983, it could be better described as a development of two existing trucks... the Thornycroft Antar Mk 3 and the Scammell Contractor. Indeed, there were short periods when it was described as both an 'Antar' and as a 'Contractor Mk 3' but, whatever its origins, it certainly derived its DNA from both its parents.

Fitted with a variation of the same 26-litre Rolls-Royce CV12 diesel engine that was used in the Challenger tank, albeit down-rated to a relatively modest 625bhp (466kW), the Commander was a massively-powerful machine. When coupled to its purpose-designed Crane-Fruehauf semi-trailer, it was capable of handling a gross train weight of 102 tons (105 tonnes) at speeds of up to 38mph (61km/h), reducing the time spent on

● 52KB85 is one of possibly just three Commanders to have been preserved... but the problems of keeping such a beast maintained, let alone driven on the road, should not be under-estimated. (*Ian Young*)

the road. At the same time, the power-assisted controls reduced driver fatigue, and the large, comfortable crew cab, with two bunk beds, allowed one crew member to sleep whilst the other drove.

The first Commander was handed to the British Army on 24 February 1984, the last in early 1985, almost two decades since the project had first been mooted. The American-built Oshkosh M1070F started to replace the Commander in service during 2003, with the last Commander surviving until the following year.

Unlike the Antar, which was based on a commercial truck, the Commander was purpose-designed for its military role, and, despite Leyland – and then Unipower – trying hard to sell the vehicle overseas, it was built solely for the British Army. There were no commercial variants and no other

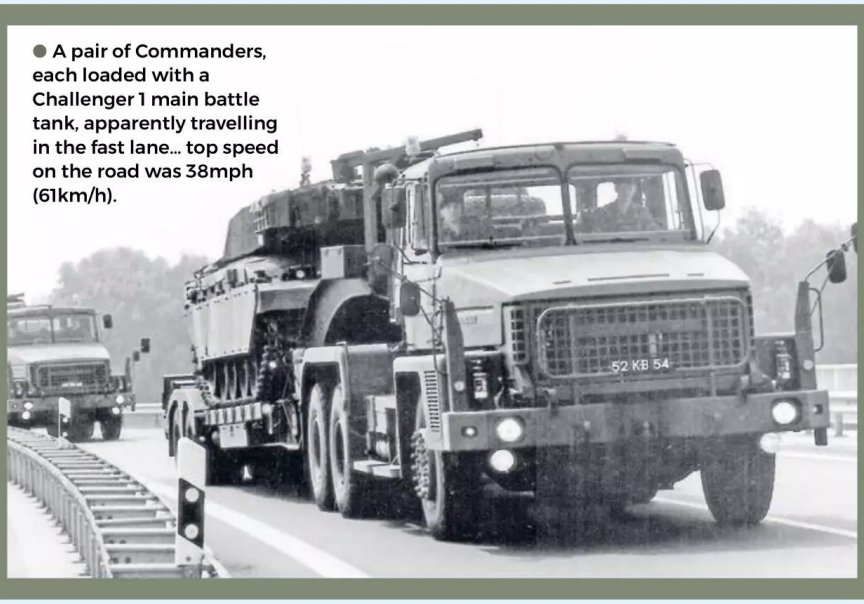
● The Commander's immediate predecessor was the Thornycroft Antar, seen here in Mk 3A (FV12006) ballast-tractor configuration, dating from 1963/64.

● When the Commander finally went into production, it could well have been described as a development of ideas taken from the Thornycroft Antar and the Scammell Contractor. This ex-Wynns' 240-ton Contractor was photographed at the Great Dorset Steam Fair.

● The 100/150-ton Contractor was supplied to Australia, Kenya, Libya and Jordan for use as a tank transporter.

armies showed any interest in the truck. Just 125 vehicles were constructed, at a price of £218,000 each including the semi-trailer. Natural attrition reduced this number slightly by virtue of a handful being destroyed in service, notably in the Gulf. In 2004, 100 of the remaining vehicles were sold or gifted to the Royal Jordanian Army together with around 400 Challenger 1 tanks... for which the Commander had originally been designed. At the time of writing (mid-2020) most of the Commanders remain in Jordan.

The number of preserved Commanders can be counted on the fingers of one hand. Three vehicles can often be seen at military-vehicle shows, at least one of which belongs to the REME Museum, and the prototype is also said to be privately-owned. However, make no mistake, whilst it might have become something of a rarity, this was Scammell's last true military heavyweight, and it was one hell of a bang to go out on!



● A pair of Commanders, each loaded with a Challenger 1 main battle tank, apparently travelling in the fast lane... top speed on the road was 38mph (61km/h).

● RIGHT Challenger 1 main battle tank, loaded onto the Cranes semi-trailer and almost ready to roll. Photographed during Exercise Iron Hammer in November 1988. The exercise, which took place in Lower Saxony, was spread over almost four weeks, and involved 3rd Armoured Division. *(Michael Jerchel via Carl Schulze)*

● Commander of Number 16 Tank Transporter Squadron, complete with semi-trailer, photographed at the Great Dorset Steam Fair. *(Ian Young)*

● The huge glass-fibre engine cover was mounted directly to the chassis and was designed to open forwards. The female driver served in Bosnia and attracted much attention from the press.

● The load is a German-built Leopard 2 main battle tank of the Royal Netherlands Army, and the photograph was taken in Bosnia. *(Shaun Connors)*

● Photographed with more than 21 tons (21.36 tonne) of Antar Mk 3 (FV12004) on the semi-trailer, 53KB03 is one of three Commanders preserved in Britain. *(Ian Young)*

● Gross train weight for the Commander, semi-trailer and Chieftain main battle tank was close to 100 tons (101.8 tonne).

ABOUT THE AUTHOR

Pat Ware has been a professional writer for more than 50 years. He is the author of more than 60 vehicle-related titles, and has specialised in military-vehicle subjects since 1995, and this title is the fourth in the '*Military Trucks Archive*' series. His expertise is recognised worldwide, and his books have been translated into a half-dozen languages.

In 2001, he was the founding editor of the UK's leading military-vehicle magazine, '*Classic Military Vehicle*', and he continues to contribute to respected military-vehicle journals in the USA and France. In 2015 he contributed to a 10-part TV show, '*War on Wheels*', for China Central Television.

His eclectic interests have also led to the publication of titles on subjects as diverse as the Cold War, commercial haulage, and iconic agricultural tractors.

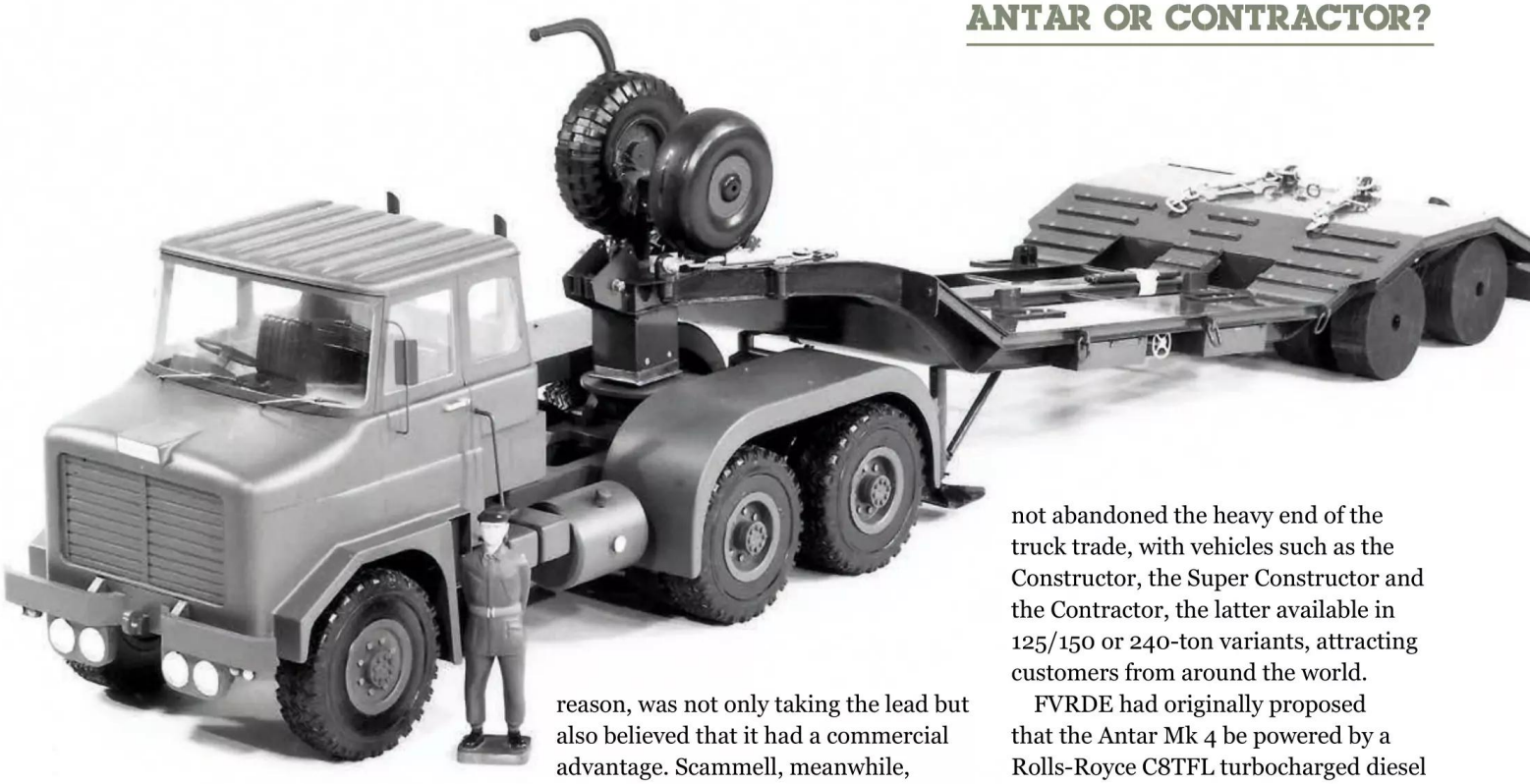
ANTAR MK 4 OR SCAMMELL CONTRACTOR?

The MoD asks Thornycroft and Scammell to come up with an upgraded Antar

Way back in January 1968, Thornycroft and Scammell, both of whom were part of the Leyland Specialised Vehicles Group, were approached by the Ministry of Defence (MoD) to consider what might be available to replace the Antar Mk 3. The Antar, which, by this time, was getting on for 20 years old, had originally been introduced in Mk 1 form in 1951 at a time when the 51-ton (52 tonne) Centurion was Britain's main battle tank. By 1966, the Centurion was starting to be replaced by the 55-ton (56 tonne) Chieftain, and the Antar was, literally, struggling to keep up with the traffic... as well as being described, perhaps unfairly, as 'a breakdown looking for a place to happen'. However, the MoD believed all that was required was a simple upgrade to the Antar Mk 3, and that deliveries of what would effectively be a new tank transporter could begin in 1971.

The starting point for the project was a general arrangement drawing produced by the Fighting Vehicles Research & Development Establishment (FVRDE) that showed a six-wheeled tractor coupled to a twin-axle 55-ton semi-trailer. The gross train weight, loaded, was to be 93.3 tons (95 tonnes) and the design had to ensure that the vehicle could be accommodated by a NATO Class 80 bridge. The target power to weight ratio was 8bhp/ton when loaded with a 55-ton (56 tonne) tank, but, from the outset, Thornycroft's engineers were doubtful that this could easily be achieved, and they also felt that the overall weight of the tractor was going to be a problem in meeting the requirements for the gross train weight. As part of the same organisation, Thornycroft and Scammell should have been working together, but it is unclear whether or not they felt that, at this stage, they were competing for the project. However, Thornycroft considered itself to be the design authority for the Antar and, for this

● Amongst the earliest documentation for the Commander project was this artist's impression of a six-wheeled semi-forward control tractor intended to be coupled to a twin-axle 55-ton semi-trailer. Even at this stage it was obvious that the cab was to be supplied by Motor Panels (Coventry) Limited!



● Small-scale wooden model of the semi forward-control tractor and semi-trailer.

reason, was not only taking the lead but also believed that it had a commercial advantage. Scammell, meanwhile, might have been unsuccessful in supplying tank transporters since the end of the war, but had, nevertheless, not abandoned the heavy end of the truck trade, with vehicles such as the Constructor, the Super Constructor and the Contractor, the latter available in 125/150 or 240-ton variants, attracting customers from around the world.

FVRDE had originally proposed that the Antar Mk 4 be powered by a Rolls-Royce C8TFL turbocharged diesel engine with a displacement of 16.2 litres (988in³). However, at only 400bhp (298kW), the Thornycroft engineers

● Scammell had not supplied a tank transporter to the British Army since 1945, but the company's 125/150-ton Contractor was a popular choice with the heavy-haulage industry and with several overseas' armies. This example, photographed at the Royal Artillery Barracks at Woolwich, was destined for Iraq.

● A total of 1257 examples of the Contractor were built, all but six of which were rated at 125/150 tons. Just six were of the 240-ton Mk 2 configuration, seen here... in the able hands of Don Pearson, John Fadelle and Mike Ballard, the Contractor provided one of the starting points for what became the Commander.

● Wynns' heavy haulage had four of the 240-ton Contractors, with the remaining two going to Pickfords. The late John Wynn rides on the running board.

believed that the C8's power output was insufficient, and proposed that the Leyland L60 two-stroke diesel might be more appropriate. Displacing around 19 litres (1,200in³), the vertically-opposed L60 was capable of producing 650-750bhp (485-559kW) and, what's more, was the same power unit as was fitted to the Chieftain.

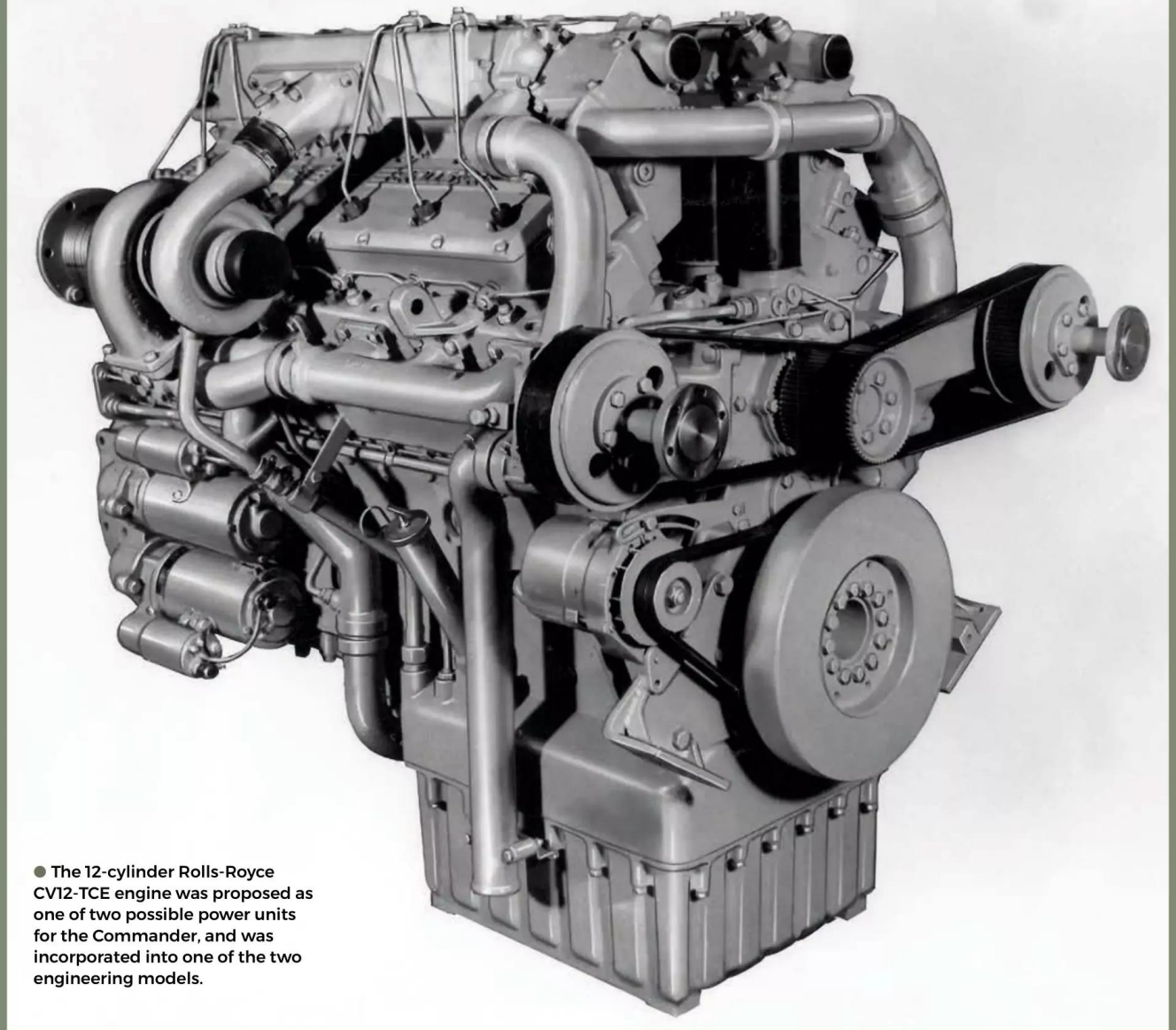
A full specification was scheduled for May, and 'manufacturing organisations' were being invited to tender in September 1969, with a view to a decision being made within 12 months. In reality, the 'manufacturing organisations' likely to be involved in the tendering process were restricted to just Thornycroft and Scammell. FVRDE stated that it was prepared to forgo the normal vehicle trials in favour of what was described as nominal acceptance trials, and deliveries were scheduled to begin in 1971/72 at the rate of 40 vehicles a year. An initial 10 pre-production vehicles were to be made available during April 1971 for testing in West Germany and Britain, and final approval would be given in April 1973, with the first of some 80-100 tractors due for delivery during October.

Thornycroft kick-started the project by drawing-up a list of suppliers and equipment based on the discussions that had taken place at FVRDE, and since, at this stage, the two companies were effectively competitors, presumably Scammell set about doing much the same thing. During February 1968, representatives of both Thornycroft and Scammell, including Thornycroft's Chief Engineer, AFL Pollitt, travelled to Chertsey for a meeting with the Assistant Director and Deputy Director of Vehicle Engineering at FVRDE. During the meeting it became obvious that FVRDE did not believe that the timescale was achievable and the date for the specification was pushed back from May 1968 to June, although tenders were still required in time to allow the final decision to be made in September 1969.

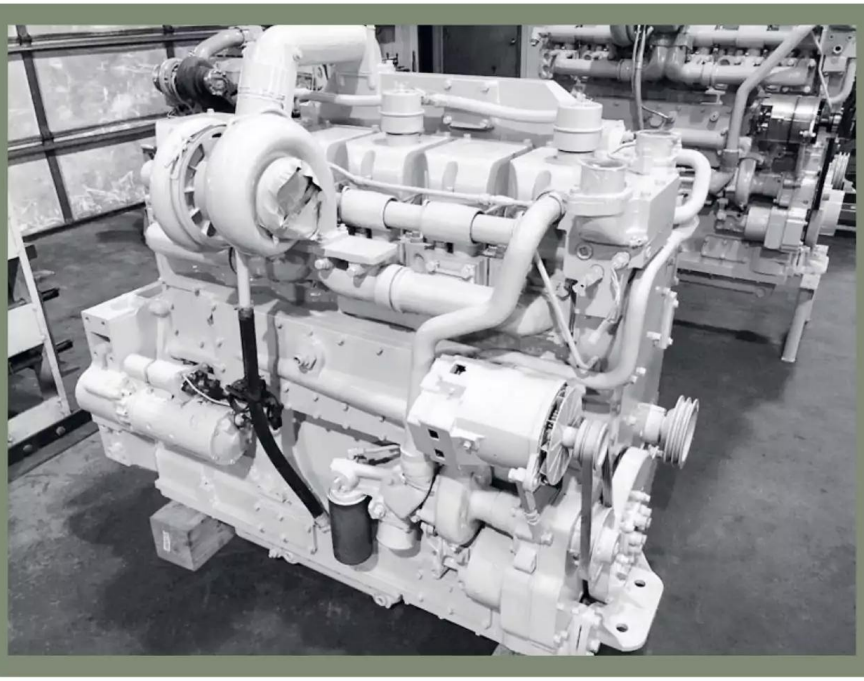
Following this meeting, Thornycroft contacted Rolls-Royce Oil Engine Division and the axle manufacturer Kirkstall Engineering, the latter

OWEN
EUROPEAN SLEEPER CAB
EUROPÄISCHE FAHRERKABINE MIT SCHLAFKOJE
LA CABINE COUCHETTE EUROPÉENNE
Motor Panels (Coventry) Limited, a principal member of the 80 - company Owen Organisation, produce pressed steel bodies, panels and assemblies for motor vehicles.
Specializing in Cabs for commercial vehicles this Company is one of the largest independent suppliers in Europe. Many types of cabs are manufactured, and well known commecial vehicle manufacturers fitting them include:
ALBION
ALVIS
ROOTES
GUY
LEYLAND
SEDDON
SCAMMELL
MACK
FLOOR
E.R.F.
FODEN
VICKERS
Motor Panels Limited produced the complicated body shell for the record breaking "Bluebird", and assembled the complete car. They also produced bodies for the Rover - B.R.M. Gas Turbine Cars and the B.R.M. team of international Grand Prix racing cars.

● An early decision saw the cab for the Commander based on a standard pressed-steel design produced by Motor Panels (Coventry) Limited.



● The 12-cylinder Rolls-Royce CV12-TCE engine was proposed as one of two possible power units for the Commander, and was incorporated into one of the two engineering models.



indicating that a suitable axle was already available. Rolls-Royce suggested that a version of the DV8T engine could be reduced in weight sufficiently to meet the specification and, at the same time, the engine could be uprated to produce 750bhp (559kW).

In late 1968, a General Staff Target document was issued to all interested parties within the MoD. There then followed a long period of silence during which neither Scammell nor Thornycroft could take the project any further.

However, there were internal changes afoot. In September 1971, the Leyland Specialised Vehicles Group announced that Thornycroft and Scammell would

● The Cummins KTA-600 engine was destined to be installed in the second engineering model.

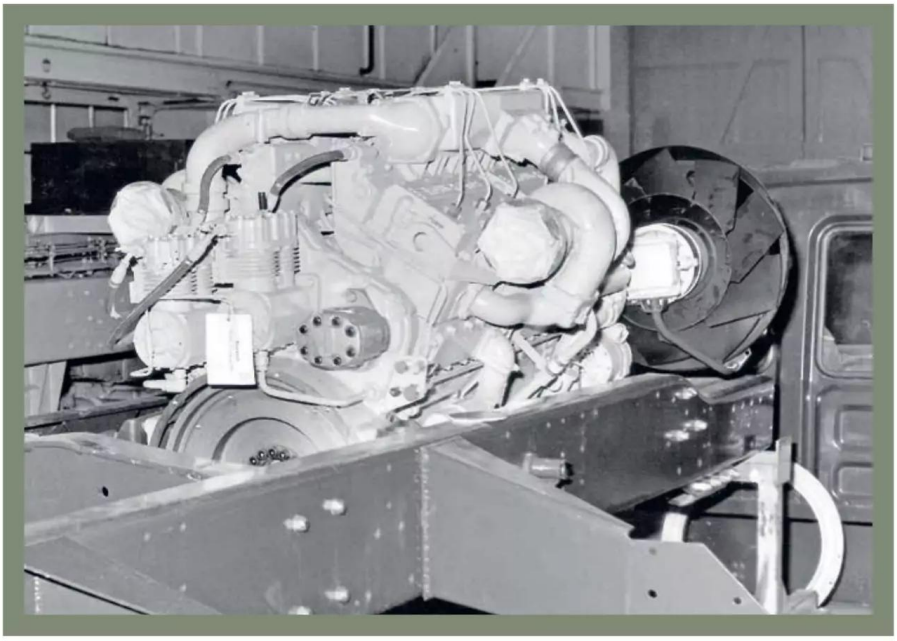
no longer compete in the same markets. Thornycroft had origins that could be traced back to 1871, whilst Scammell, who were established in 1922, were relative newcomers. Nevertheless, all of the engineering and manufacturing resources of what since 1948 had been known as Transport Equipment (Thornycroft) Limited were moved to Watford, and the company was now to be known as Scammell Motors Limited. The Thornycroft factory at Basingstoke was closed down and, from this point, the project was carried forward under the Scammell banner. Of Thornycroft's former product range, only the Nubian fire tender and the LD55 6x4 dump truck remained in production and both of these were now badged 'Scammell'. Clearly, the demise of Thornycroft meant that there was to be no Antar Mk 4.

But there doesn't seem to have been any particular hurry, and it wasn't until early 1972 when the Detailed Statement of Requirement (SR55/01/72) for the project was finally issued and it wasn't until May the following year when it was finally endorsed. The vehicle was still being described as a 55-ton tank transporter, with either a 6x4 or 8x4 wheel layout, coupled to a two-axle semi-trailer, and it was stated that the engine should produce some 680bhp (507kW), sufficient to give a maximum speed of 40mph (60km/h) loaded and 43mph (70km/h) unloaded.

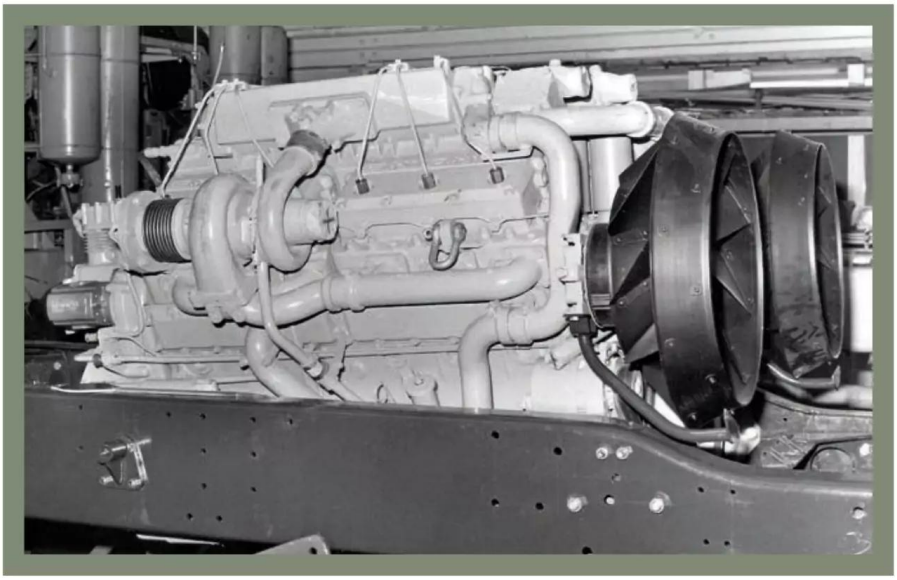
The project was now in the hands of Scammell, albeit a number of former engineering staff from Thornycroft had been transferred to Watford as part of the reorganisation. They included Don Pearson, who was with the project almost from beginning to end, and John Fadelle.

Scammell in the driving seat

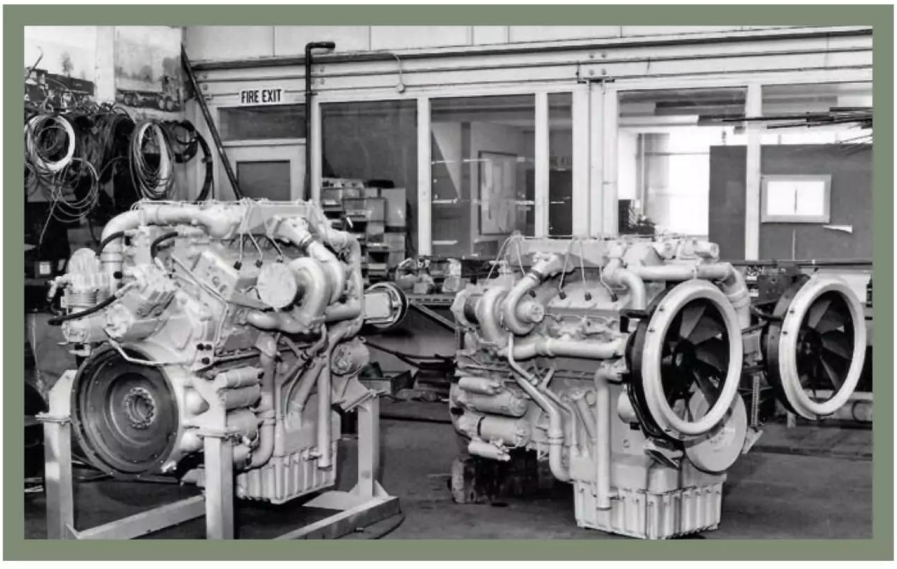
In response to the Statement of Requirement, Scammell went back to the drawing board, spending the better part of a year preparing a detailed feasibility study. The document, which ran to 120 pages, described 14 different tractor configurations, comparing each of these to the normal-control 6x4 tractor described in the Statement of Requirement. The configuration most favoured by the Scammell team was a short-bonneted semi forward-control tractor with a wheelbase length of 192in



● Right-hand rear view of the Rolls-Royce CV12-TCE power unit installed in the chassis.



● Right-hand view of the Rolls-Royce CV12-TCE engine showing the Airscrew-Howden twin fans, and the turbocharger.



● A pair of CV12-TCE engines on the workshop floor, one installed in a square-tube frame, the other balanced on a block of wood.

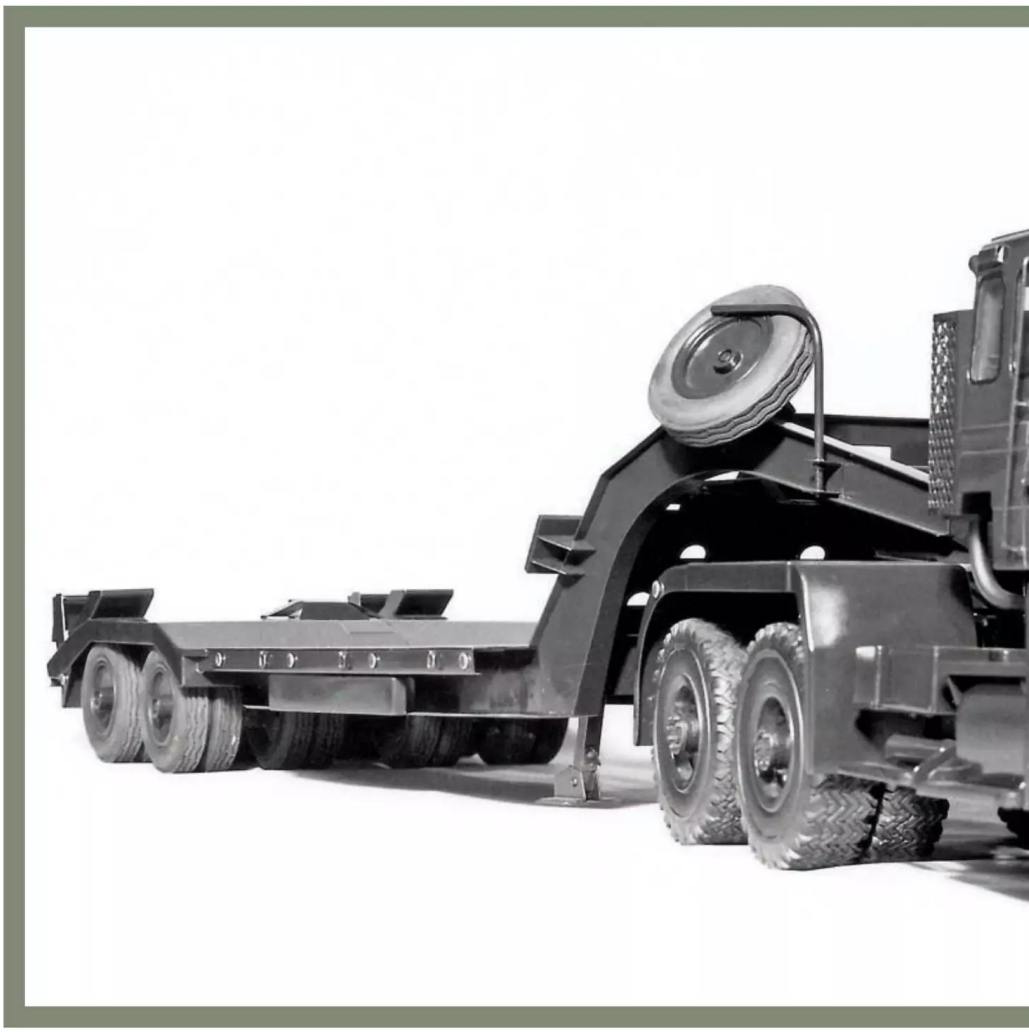
● Full-size mock-up, complete with uniformed soldiers, badged as a Contractor. The windscreen and nose treatment have yet to be resolved.

● Note how the engine cover hinges at its base, allowing good access to the motor... in this case, the Cummins KTA-600 unit.

(4880mm), with the engine and gearbox placed over the front axle. Although the height of the cab was something of a disadvantage, as was the difficulty of accessing the mechanical components, factors such as easy access into the cab, a good approach angle, and excellent visibility were all listed as positive features.

The team was not confident that the bridge classification of 80 could be achieved and were suggesting that a figure of 82 would be more realistic. At the same time, they were nervous of achieving the necessary levels of braking performance, specified as 0.6 on a Tapley decelerometer from 20mph (32km/h).

Four possible engines were proposed... the Rolls-Royce CV8-TCA, the American-built Cummins KTA-1150 or GM Detroit Diesel 12V-71, and the German MTU Friedrichshafen MB-6V-331. Power outputs ranged between 530bhp (395kW) for the Rolls-Royce unit and 600bhp (447kW) for the Cummins, with the latter felt to be the most suitable. As regards the transmission, it was suggested that the six-speed semi-automatic Allison CLBT-6061 be installed in conjunction with



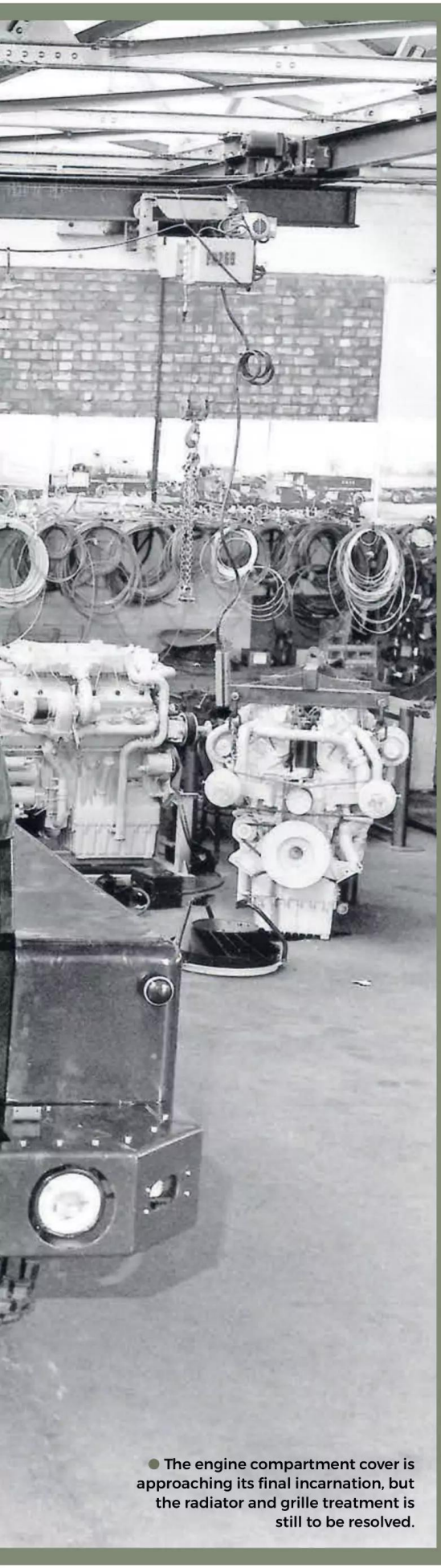
● Designer John Beck produced this scale model which demonstrated a better approach to harmonising the cab and engine cover. The windscreen now consists of two separate glazed panels, a feature that was retained into the production version.

● Another scale model, this time much closer in appearance to the finished product.

an Allison TC680 torque converter and hydraulic retarder; consideration was also given to a ZF five-speed unit. The five-man sleeper cab was based on a standard pressed-steel design supplied by Motor Panels (Coventry) Limited; the same cab as had been specified by Foden for a number of military vehicles, including the tractor for the FH70 155mm gun.

Nothing, it seems, happened quickly on this project and it wasn't until 1976 that the Statement of Requirement was revised and reissued as SR55/03/76. Changes included the use of a four-man sleeper cab with two bunks, an increase in the bridge classification to 100, reduction in the power-to-weight ratio down to 6-7bhp/tonne, a reduction in maximum speed (laden) on a 2.5% gradient, a lowering of the braking efficiency to 45%, and an increase in winch capacity to 35 tonnes. In October 1976, Scammell was awarded contract WV/11971, and was appointed as the prime contractor for the complete project, with Crane-Fruehauf appointed as a subcontractor to Scammell for the design and production of the semi-trailer. It had taken almost nine years to get to this point!

● Various grille treatments were applied to both the cab mock-ups and the two engineering vehicles. This open mesh arrangement was obviously ruled out as unsatisfactory.



● The engine compartment cover is approaching its final incarnation, but the radiator and grille treatment is still to be resolved.

● Full-sized cab mock-up, as with all of the early vehicles, lacking the air-intake grilles ahead of the front mudguards.

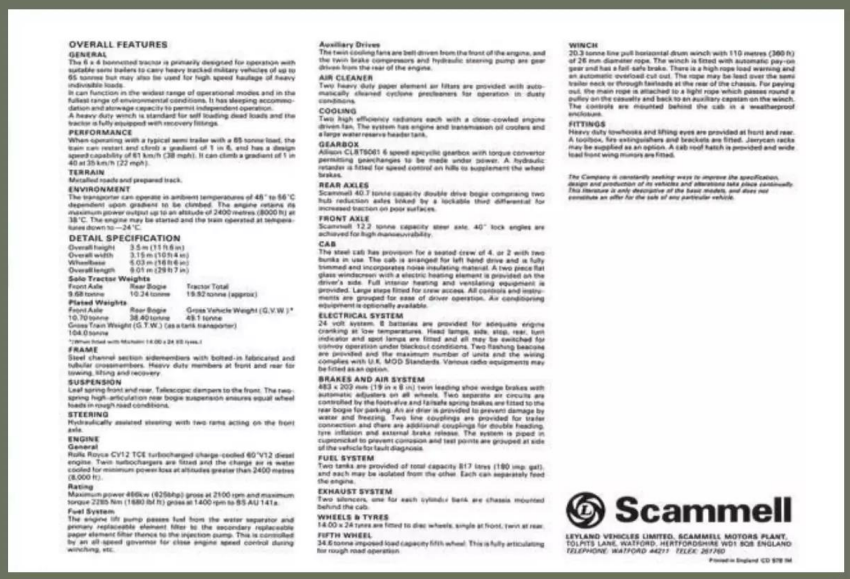
● This is possibly the same cab mock-up as the previous photograph, but note how the radiator carried both the British Leyland badge and the name Scammell.

● Different treatments for the Leyland and Scammell badges.

Scammell's next task was the construction of a full-size timber and glass-fibre composite mock-up that showed where the major automotive components would be located and how the finished vehicle might look. The radiators were mounted behind the cab, but, in every other way the layout followed normal practice, with the engine and gearbox mounted over the front axle. The radiator badging was interchangeable, with the maker identified, according to various photographs, as either 'Leyland' or 'Scammell', with the name 'Contractor' appearing on the bonnet sides. In contemporary Scammell documentation the vehicle was now being described as the Contractor Mk 3.

At about the same time, Scammell prepared what were described as 'unit schedule sheets' for two Commander engineering models or prototypes, one to be powered by the Rolls-Royce CV12-TCE, the other by the Cummins KTA-600; both were to be fitted with the Allison CLBT 6061 six-speed transmission. With the aid of a pair of Airscrew-Howden close-cowled fans blowing air across the engine, the radiators were returned to their 'proper' place at the front of the vehicle. The chassis and rear suspension were derived from the Contractor, whilst the rear axle, supplied by Kirkstall Engineering,

● In March 1978, a third prototype was constructed intended for possible sale to Iran. Seated on the engine compartment cover, and closest to the camera, is Malcolm Russell, Scammell's cab designer.



OVERALL FEATURES

GENERAL
The 6 x 4 bonnetted tractor is primarily designed for operation with suitable semi trailers to carry heavy tracked military vehicles of up to 65 tonnes but may also be used for high speed haulage of heavy indivisible loads.
It can function in the widest range of operational modes and in the fullest range of environmental conditions. It has sleeping accommodation and stowage capacity to permit independent operation.
A heavy duty winch is standard for self loading dead loads and the tractor is fully equipped with recovery fittings.

PERFORMANCE
When operating with a typical semi trailer with a 65 tonne load, the train can restart and climb a gradient of 1 in 8, and has a design speed capability of 61 km/h (38 mph). It can climb a gradient of 1 in 40 at 35 km/h (22 mph).

TERRAIN
Metalled roads and prepared track.

ENVIRONMENT
The transporter can operate in ambient temperatures of 46° to 56°C dependent upon gradient to be climbed. The engine retains its maximum power output up to an altitude of 2400 metres (8000 ft) at 38°C. The engine may be started and the train operated at temperatures down to —24°C.

DETAIL SPECIFICATION

Overall height	3.5 m (11 ft 6 in)
Overall width	3.15 m (10 ft 4 in)
Wheelbase	6.03 m (19 ft 6 in)
Overall length	8.01 m (26 ft 7 in)

Solo Tractor Weights

Front Axle	Rear Bogie	Tractor Total
9.68 tonne	10.24 tonne	19.92 tonne (approx)

Plated Weights

Front Axle	Rear Bogie	Gross Vehicle Weight (G.V.W.)*
10.70 tonne	38.40 tonne	49.1 tonne

Gross Train Weight (G.T.W.) (as a tank transporter)
104.0 tonne
*When fitted with Michelin 14.00 x 24 XS tyres.

FRAME
Steel channel section sidemembers with bolted-in fabricated and tubular crossmembers. Heavy duty members at front and rear for towing, lifting and recovery.

SUSPENSION
Leaf spring front and rear. Telescopic dampers to the front. The two-spring high-articulation rear bogie suspension ensures equal wheel loads in rough road conditions.

STEERING
Hydraulically assisted steering with two rams acting on the front axle.

ENGINE
General
Rolls Royce CV12 TCE turbocharged charge-cooled 60°V12 diesel engine. Twin turbochargers are fitted and the charge air is water cooled for minimum power loss at altitudes greater than 2400 metres (8,000 ft).

Rating
Maximum power 466kw (625bhp) gross at 2100 rpm and maximum torque 2285 Nm (1680 lbf ft) gross at 1400 rpm to BS AU 141a.

Fuel System
The engine lift pump passes fuel from the water separator and primary replaceable element filter to the secondary replaceable paper element filter thence to the injection pump. This is controlled by an all-speed governor for close engine speed control during winching, etc.

Auxiliary Drives
The twin cooling fans are belt-driven from the front of the engine, and the twin brake compressors and hydraulic steering pump are gear driven from the rear of the engine.

AIR CLEANER
Two heavy duty paper element air filters are provided with automatically cleaned cyclone precleaners for operation in dusty conditions.

COOLING
Two high efficiency radiators each with a close-cowled engine driven fan. The system has engine and transmission oil coolers and a large water reserve header tank.

GEARBOX
Allison CLBT6061 6 speed epicyclic gearbox with torque convertor permitting gearchanges to be made under power. A hydraulic retarder is fitted for speed control on hills to supplement the wheel brakes.

REAR AXLES
Scammell 40.7 tonne capacity double drive bogie comprising two hub reduction axles linked by a lockable third differential for increased traction on poor surfaces.

FRONT AXLE
Scammell 12.2 tonne capacity steer axle, 40° lock angles are achieved for high manoeuvrability.

CAB
The steel cab has provision for a seated crew of 4, or 2 with two bunks in use. The cab is arranged for left hand drive and is fully trimmed and incorporates noise insulating material. A two piece flat glass windscreen with a electric heating element is provided on the driver's side. Full interior heating and ventilating equipment is provided. Large steps fitted for crew access. All controls and instruments are grouped for ease of driver operation. Air conditioning equipment is optionally available.

ELECTRICAL SYSTEM
24 volt system. 8 batteries are provided for adequate engine cranking at low temperatures. Head lamps, side, stop, rear, turn indicator and spot lamps are fitted and all may be switched for convoy operation under blackout conditions. Two flashing beacons are provided and the maximum number of units and the wiring complies with U.K. MOD Standards. Various radio equipments may be fitted as an option.

BRAKES AND AIR SYSTEM
483 x 203 mm (19 in x 8 in) twin leading shoe wedge brakes with automatic adjusters on all wheels. Two separate air circuits are controlled by the footvalve and fail/safe spring brakes are fitted to the rear bogie for parking. An air drier is provided to prevent damage by water and freezing. Two line couplings are provided for trailer connection and there are additional couplings for double heading, tyre inflation and external brake release. The system is piped in cupronickel to prevent corrosion and test points are grouped at side of the vehicle for fault diagnosis.

FUEL SYSTEM
Two tanks are provided of total capacity 817 litres (180 imp. gal), and each may be isolated from the other. Each can separately feed the engine.

EXHAUST SYSTEM
Two silencers, one for each cylinder bank are chassis mounted behind the cab.

WHEELS & TYRES
14.00 x 24 tyres are fitted to disc wheels; single at front, twin at rear.

FIFTH WHEEL
34.6 tonne imposed load capacity fifth wheel. This is fully articulating for rough road operation.

WINCH
20.3 tonne line pull horizontal drum winch with 110 metres (360 ft) of 26 mm diameter rope. The winch is fitted with automatic pay-on gear and has a fail-safe brake. There is a high rope load warning and an automatic overload cut out. The rope may be lead over the semi trailer neck or through fairleads at the rear of the chassis. For paying out, the main rope is attached to a light rope which passes round a pulley on the casualty and back to an auxiliary capstan on the winch. The controls are mounted behind the cab in a weatherproof enclosure.

FITTINGS
Heavy duty towhooks and lifting eyes are provided at front and rear. A toolbox, fire extinguishers and brackets are fitted. Jerrycan racks may be supplied as an option. A cab roof hatch is provided and wide load front wing mirrors are fitted.

The Company is constantly seeking ways to improve the specification, design and production of its vehicles and alterations take place continually. This literature is only descriptive of the basic models, and does not constitute an offer for the sale of any particular vehicle.

Scammell
LEYLAND VEHICLES LIMITED, SCAMMELL MOTORS PLANT, TOLPITS LANE, WATFORD, HERTFORDSHIRE WD1 8QB ENGLAND
TELEPHONE WATFORD 44211 TELEX 261760
Printed in England CD 978 IM

● Simple two-page sales leaflet dating from September 1978, and presumably produced to support the Motor Show exhibit.

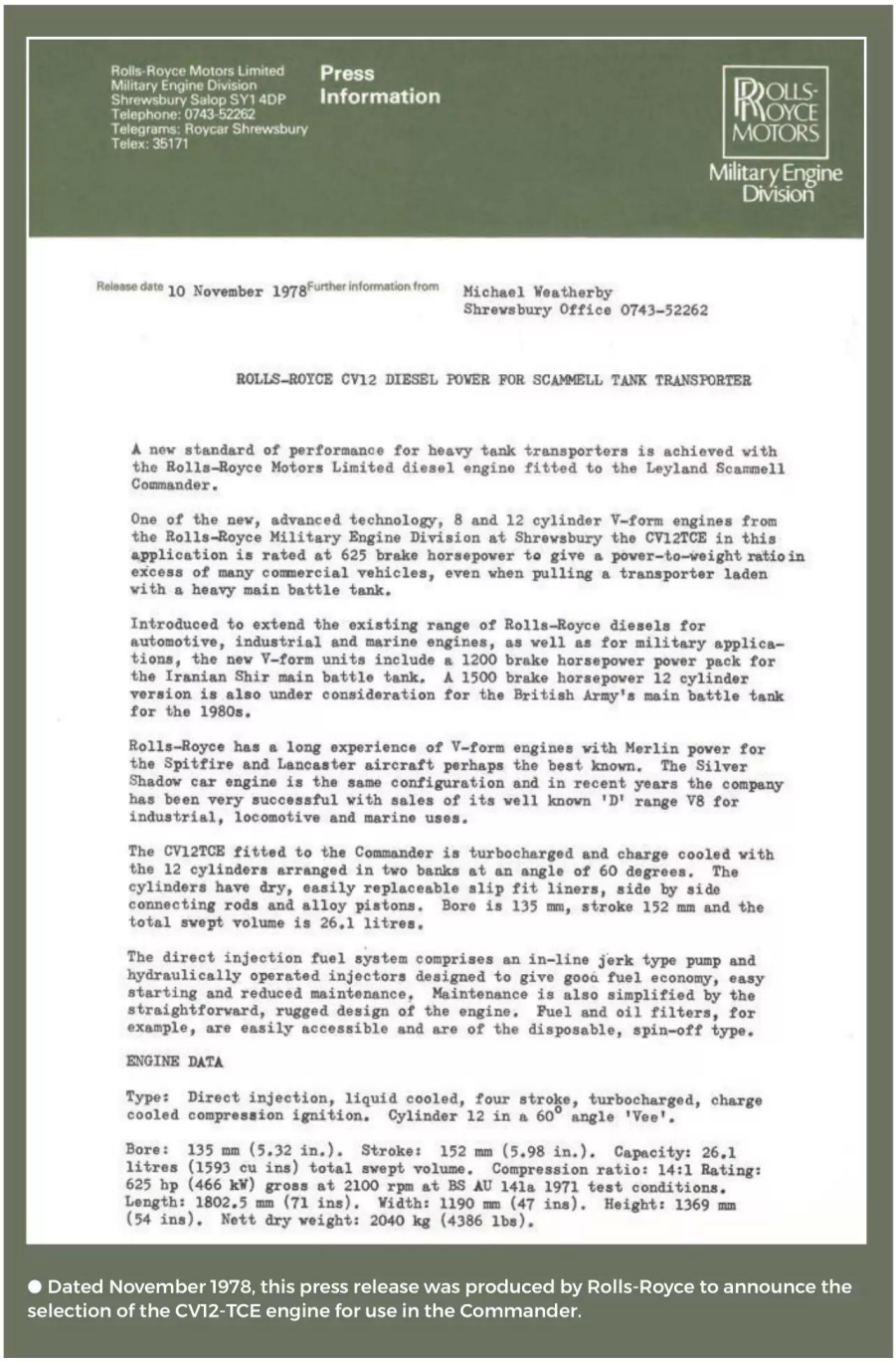
● In October 1978, the Rolls-Royce engined prototype appeared at the British International Motor Show at Earl's Court. With a quoted price of £100,000 it was the most expensive vehicle at the Show and attracted considerable attention.

was based on that used for the limited-production 240-ton Contractor Mk 2.

Once these vehicles had been subjected to a programme of trials and assessment, any required modifications would be incorporated into what were described as 'validation vehicles' that would eventually lead to a specification for the production machines... rather like Commanders version 1, version 2 and version 3!

A separate contract was issued for braking trials and a test vehicle was hastily put together using an existing Cummins-engined Contractor chassis, which spent two or three months with Number 414 Squadron, Royal Corps of Transport at Ward Barracks, Bulford in Wiltshire. The same braking equipment was also fitted to the Scammell 12-ton front axle that was destined for the Commander, to ensure that this axle would be able to absorb the stresses generated during braking.

And finally, there was the question of the aesthetics of the machine. Leyland's management were definitely not happy with the rather makeshift appearance of the mock-up, and employed John Beck, a freelance industrial designer, to look at how this might be improved. Although it was a given that the Motor Panels Mk IV cab was to be used, this was generally specified in the forward-control configuration and the Commander



Rolls-Royce Motors Limited
Military Engine Division
Shrewsbury Salop SY1 4DP
Telephone: 0743-52262
Telegrams: Roycar Shrewsbury
Telex: 35171

Press Information

ROLLS-ROYCE MOTORS
Military Engine Division

Release date 10 November 1978 Further information from Michael Weatherby
Shrewsbury Office 0743-52262

ROLLS-ROYCE CV12 DIESEL POWER FOR SCAMMELL TANK TRANSPORTER

A new standard of performance for heavy tank transporters is achieved with the Rolls-Royce Motors Limited diesel engine fitted to the Leyland Scammell Commander.

One of the new, advanced technology, 8 and 12 cylinder V-form engines from the Rolls-Royce Military Engine Division at Shrewsbury the CV12TCE in this application is rated at 625 brake horsepower to give a power-to-weight ratio in excess of many commercial vehicles, even when pulling a transporter laden with a heavy main battle tank.

Introduced to extend the existing range of Rolls-Royce diesels for automotive, industrial and marine engines, as well as for military applications, the new V-form units include a 1200 brake horsepower power pack for the Iranian Shir main battle tank. A 1500 brake horsepower 12 cylinder version is also under consideration for the British Army's main battle tank for the 1980s.

Rolls-Royce has a long experience of V-form engines with Merlin power for the Spitfire and Lancaster aircraft perhaps the best known. The Silver Shadow car engine is the same configuration and in recent years the company has been very successful with sales of its well known 'D' range V8 for industrial, locomotive and marine uses.

The CV12TCE fitted to the Commander is turbocharged and charge cooled with the 12 cylinders arranged in two banks at an angle of 60 degrees. The cylinders have dry, easily replaceable slip fit liners, side by side connecting rods and alloy pistons. Bore is 135 mm, stroke 152 mm and the total swept volume is 26.1 litres.

The direct injection fuel system comprises an in-line jerk type pump and hydraulically operated injectors designed to give good fuel economy, easy starting and reduced maintenance. Maintenance is also simplified by the straightforward, rugged design of the engine. Fuel and oil filters, for example, are easily accessible and are of the disposable, spin-off type.

ENGINE DATA

Type: Direct injection, liquid cooled, four stroke, turbocharged, charge cooled compression ignition. Cylinder 12 in a 60° angle 'Vee'.

Bore: 135 mm (5.32 in.). Stroke: 152 mm (5.98 in.). Capacity: 26.1 litres (1593 cu ins) total swept volume. Compression ratio: 14:1 Rating: 625 hp (466 kW) gross at 2100 rpm at BS AU 141a 1971 test conditions. Length: 1802.5 mm (71 ins). Width: 1190 mm (47 ins). Height: 1369 mm (54 ins). Nett dry weight: 2040 kg (4386 lbs).

● Dated November 1978, this press release was produced by Rolls-Royce to announce the selection of the CV12-TCE engine for use in the Commander.

was a bonneted vehicle. Nevertheless, Beck was able to soften the rather uncomfortable transition from the enormous bonnet to the cab, proper, producing a one-fifth scale model with alternative nose treatments that dictated the final appearance of the Commander, and gave the engineering design team something to work with.

Work begins on the prototypes

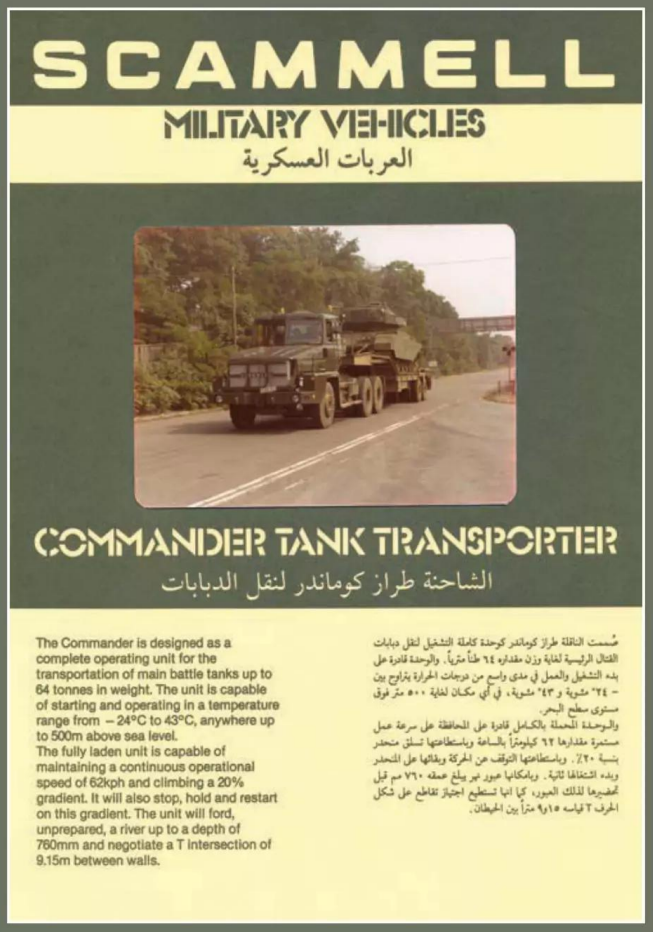
By the beginning of 1977, work had begun on the construction of the two prototypes, using the chassis numbers WHV4588 – later to be registered 06SP04 – and WHV4589, registered 06SP02. Work also started on the two Cranes semi-trailers, numbered 06SP03 and 06SP05.

In March 1978, a third prototype was constructed, also with a Rolls-Royce engine, intended for possible sale to Iran... although that prospect came to a shuddering halt with the Islamic revolution in Iran in 1978/79. The new Iranian government, under Ayatollah Khomeini, turned to the East for military equipment and the validation tractor was trapped in Iran until 1980. When it did find its way back to Europe, to add insult to injury, the transmission was damaged during unloading at Antwerp, and the ultimate fate of the vehicle is not known.

Finished in the familiar glossy Deep Bronze Green, the first two prototypes, which were identical to one another, were completed in late 1978. Both tractors were given various experimental grille treatments, and 06SP04 was subsequently repainted in matt NATO green. An announcement was made to a very receptive trade press, and to the national newspapers, in early October. Leyland were said to be 'confident that the Commander, which sells at a six-figure price, will replace the Antar in the eighties', going on to state, equally confidently, that the 'Commander will be bought by the Ministry of Defence and overseas governments to transport

● Loaded with a Chieftain main battle tank, although still lacking the production trailer, one of the three prototypes is readied for trials.

● Iran prototype loaded with a Centurion main battle tank. The semi-trailer is not the production version.



SCAMMELL

MILITARY VEHICLES

العربات العسكرية

COMMANDER TANK TRANSPORTER

الشاحنة طراز كوماندر لنقل الدبابات

The Commander is designed as a complete operating unit for the transportation of main battle tanks up to 64 tonnes in weight. The unit is capable of starting and operating in a temperature range from – 24°C to 43°C, anywhere up to 500m above sea level.
The fully laden unit is capable of maintaining a continuous operational speed of 62kph and climbing a 20% gradient. It will also stop, hold and restart on this gradient. The unit will ford, unprepared, a river up to a depth of 760mm and negotiate a T intersection of 9.15m between walls.

صُممت الناقلة طراز كوماندر كوحدة كاملة التشغيل لنقل دبابات القتال الرئيسية لغاية وزن مقداره ٦٤ طناً متريّاً. والوحدة قادرة على بدء التشغيل والعمل في مدى واسع من درجات الحرارة يتراوح بين – ٢٤° مئوية و ٤٣° مئوية، في أي مكان لغاية ٥٠٠ متر فوق مستوى سطح البحر.
والوحدة المحملة بالكامل قادرة على المحافظة على سرعة عمل مستمرة مقدارها ٦٢ كيلومتراً بالساعة وباستطاعتها تسلق منحدر بنسبة ٢٠٪. وباستطاعتها التوقف عن الحركة وبدئها على المنحدر وبدء اشتغالها ثانية. وبامكانها عبور نهر يبلغ عمقه ٧٦٠ مم قبل تحضيرها لذلك العبور، كما انها تستطيع اجتياز تقاطع على شكل الحرف T قياسه ٩٫١٥ متراً بين الجدران.

SCAMMELL

6X4 COMMANDER TANK TRANSPORTER

الشاحنة طراز كوماندر ٦ × ٤ لنقل الدبابات

MAXIMUM DESIGN WEIGHTS

Gross Vehicle Weight – Tractor	52300kg
Gross Combination Weight – Train	101400kg
Payload	64000kg

DIMENSIONS (mm)

A	Wheelbase – Tractor	5529	G	Bogie Spread – Tractor	1800
B	Overall Length – Tractor	8011	H	Bogie Spread – Trailer	1480
C	Overall Length – Train	19042		Overall Width – Tractor	3150
D	Overall Height	4100		Overall Width – Trailer	3690
E	Front Overhang – Tractor	2113		Track – Front Axle Tractor	2440
F	Rear Overhang – Trailer	2050		Track – Rear Bogie Trailer	2261

أوزان التصميم القصوى

الأبعاد بالمليمترات

ENGINE

Rolls Royce CV12 TCE turbocharger-cooled 60°V12 diesel engine. Twin Turbochargers are fitted and the charge air is water cooled for minimum power loss at altitudes greater than 2400 metres (8000 ft).
Ratings: Maximum Power 446 kw (625 bhp) gross at 2100 rpm and maximum torque 2285 Nm (1680 lbf ft) gross at 1400 rpm to BSAU 141a.

المحرك

COOLING

Two high efficiency radiators each with a close cowled engine driven fan. The system has engine and transmission oil coolers and a large water reserve header tank.

التبريد

TRANSMISSION

Allison CLBT 6061 6 speed Epicyclic Gearbox with a torque converter permitting gear changes to be made under power. A hydraulic retarder is fitted for speed control on hills to supplement the wheel brakes.

ناقل الحركة

CAB

The all steel cab is arranged for left-hand drive and can seat a crew of 5, or 2 with the bunks in use. A comprehensive range of instruments and warning lights is provided.

قمرة القيادة

AXLES & SUSPENSION

The front axle is of Scammell design and has a 12 tonne capacity. The Scammell designed rear bogie comprises two hub reduction axles linked by a lockable third differential for increased traction on poor surfaces. Leaf spring suspension is used throughout — the front assisted by telescopic dampers. The rear bogie suspension is of the high articulation type, therefore always ensuring equal wheel loads in rough road conditions.

المحاور وآلية التعليق

WINCH

A hydraulic 20 tonne line pull horizontal drum winch is provided for the retrieval of inoperative equipment.

الرفاع

WHEELS & TYRES

14.00 x 24 tyres are used throughout fitted to steel disc wheels. Single front, twin rear formation.

العجلات والإطارات

TRAILER

The all steel main deck is supported by a frame work of fabricated 'I' beams and channel cross members. The beaver-tail is stroked and has two manually operated loading ramps, which are adjustable to suit various track widths. An unsprung rocker beam suspension ensures even load distribution to all 16 tyres.

المقطورة

The Company is constantly seeking ways to improve the specification, design and production of its vehicles and alterations take place continually. This literature is only descriptive of the basic models, and does not constitute an offer for the sale of any particular vehicle.

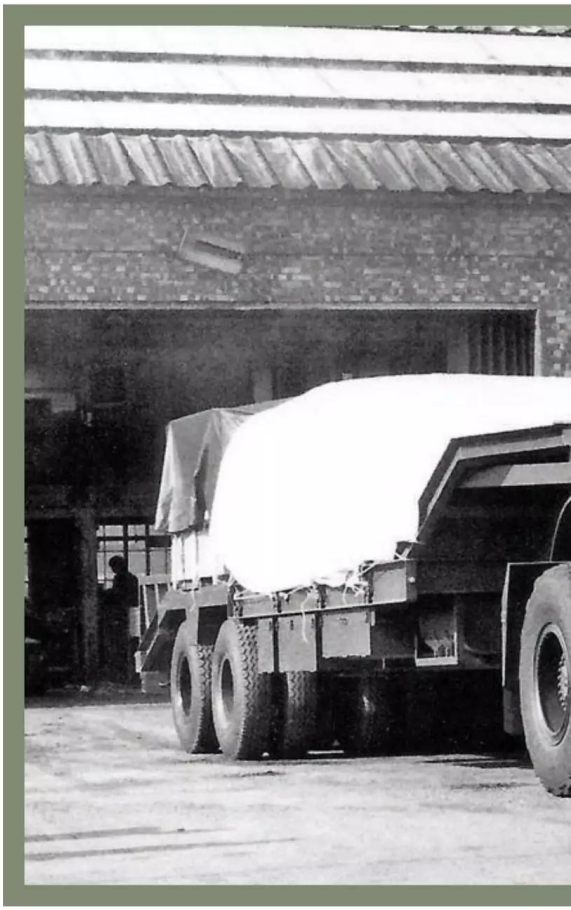
Printed in England

SCAMMELL ST SPECIAL TRUCKS LIMITED

Tolpits Lane · Watford · Herts
WD1 8QB England
Telephone: 0923 244211
Fax: 0923 228621
Telex: 261760

● English and Farsi dual-language leaflet produced to support the possible sale of the Commander to Iran.

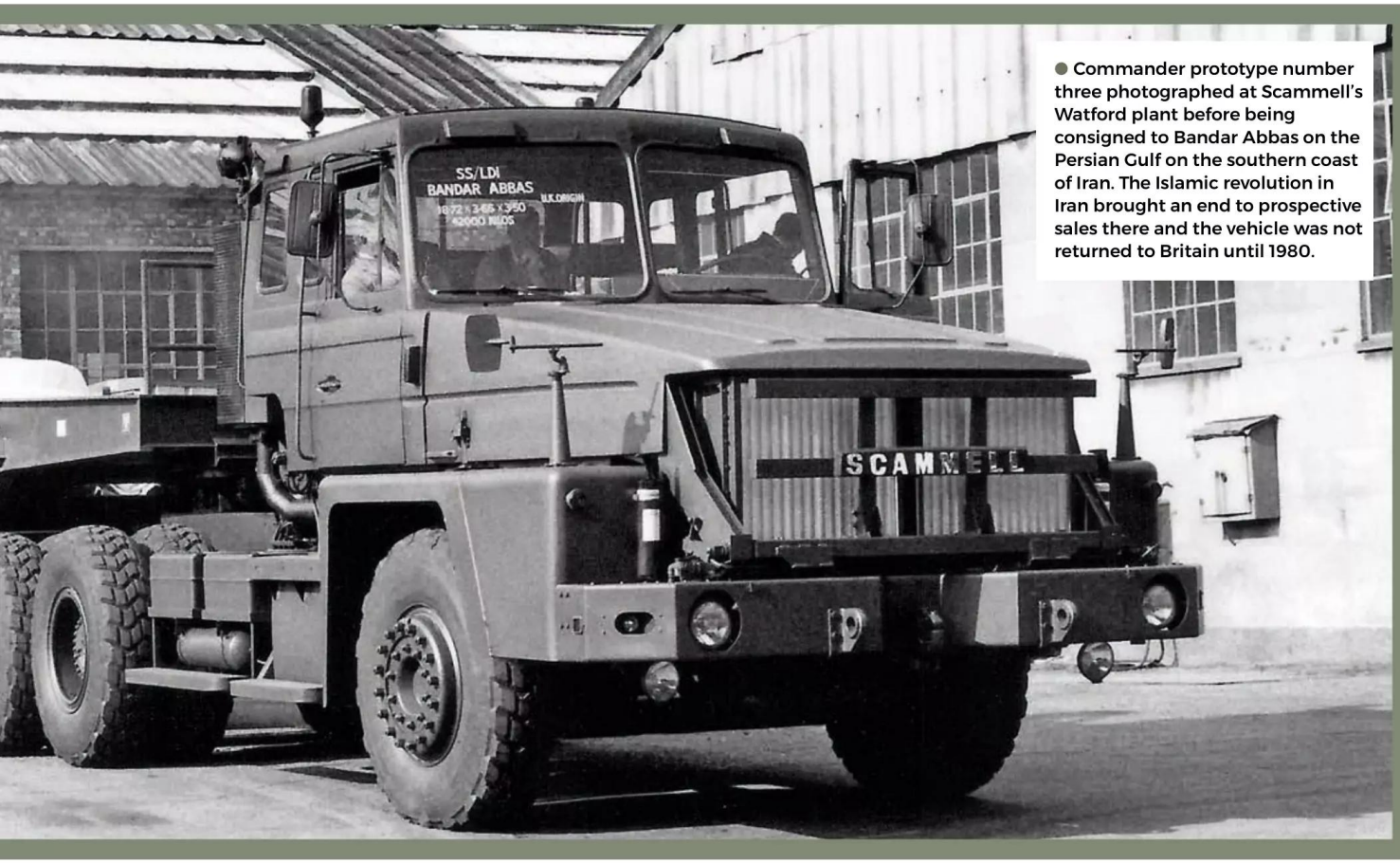
● Rare photograph of the Iran prototype actually undergoing trials in Iran.



● During 1979, the two prototypes were subjected to a series of reliability trials on all surfaces, including mud and metalled roads, and under a variety of weather conditions.

Chieftain and other main battle tanks'. Rolls-Royce also issued a press release describing their own involvement in the project, and describing the 12-cylinder 625bhp (466kW) CV12-TCE engine that was fitted into what they described as the 'Leyland Scammell Commander', claiming that it provided 'a new standard of performance for heavy tank transporters'.

In October, the Rolls-Royce engined prototype was exhibited at the British International Motor Show, which was held at the National Exhibition Centre (NEC) in Birmingham. For the first time



● Commander prototype number three photographed at Scammell's Watford plant before being consigned to Bandar Abbas on the Persian Gulf on the southern coast of Iran. The Islamic revolution in Iran brought an end to prospective sales there and the vehicle was not returned to Britain until 1980.

● All three of the prototypes were finished in gloss Deep Bronze Green.

● The lack of rear mudguards on the prototypes tended to throw muck all around the area of the rear wheels and the leading edge of the trailer. Note how on the prototypes only the driver's windscreen was equipped with heating elements.

the Motor Show and the Commercial Vehicle Show were combined, and, needless to say, the Commander attracted considerable attention, laying claim to being the largest, heaviest, and most powerful vehicle at the Show. At a quoted £100,000, it was also the most expensive.

During the following year, the prototype vehicles were subjected to a series of reliability trials intended to shake down any problems and to ensure that the design targets had been met. Unusually, the trials were conducted jointly with the Military Vehicles Engineering Establishment (MVEE), as FVRDE had become known, and Scammell, rather than consecutively. In terms of reliability, the Commander was expected to achieve a 'mean distance between failures' (MDBF) of at least 3000 miles (5000km). Towards the end of the year, the engineering model units were returned to Scammell, where they were stripped down and assessed for wear.

Meanwhile, mindful that the Chieftain was soon to be superseded by the heavier Challenger 1, the MoD took the opportunity to request that the transporter train be uprated to accommodate tanks up to 65 tonnes in weight. Crane-Fruehauf promised that an uprated semi-trailer would be ready by the autumn of 1980... which was just as well since the original trailer was found to suffer from severe stress cracking even when loaded to only 55 tonnes.

In June 1980, Scammell announced that user trials would also be conducted jointly between the company and the MoD. Following this announcement, '*Soldier*' magazine stated that 'official acceptance (of the Commander) depends on the outcome of the Ministry trials... (as a result of which) the makers expect only minor alterations to what they herald as the most powerful and most expensive road vehicle in the world'. These user trials were the last opportunity that the users would have to influence the specification of the vehicle, which was scheduled to go into production by the end of the year.

The trials were to be carried out in West Germany over a four-month period covering June to September 1980 by Number 7 Tank Transporter

● Brushing the trees on the MVEE Bagshot test track.

Regiment, operating through Numbers 3, 16 and 617 Squadrons, based at Sennelager, Fallingbostel and Hamm, respectively. The vehicle would also be driven to other units to allow them to see what was described as 'the shape of the future'. During the trials the Regiment agreed that a monthly report would be produced indicating general progress, and that a comprehensive report would be completed once the trials ended.

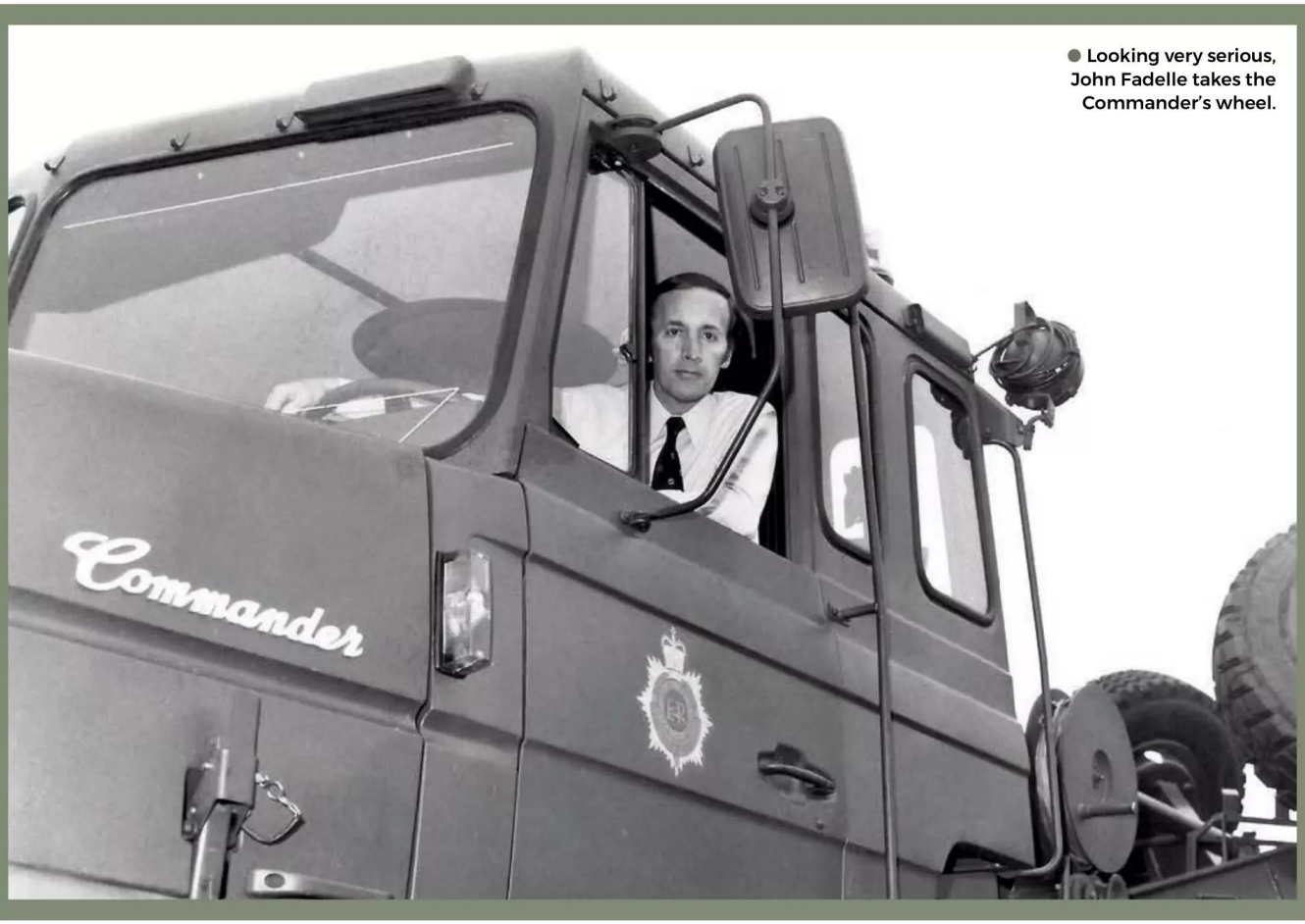
Personnel training and familiarisation had already taken place during May and, with this phase out of the way, the vehicle was shipped to Germany via Antwerp.

By the time the user trials were over, Scammell's expenditure had risen to £1,089,237 against a budget figure of £1,600,500.

However, all was not well in Whitehall, and Scammell was about to find itself embroiled in a political storm. In 1979, Britain had been in the grip of a bad recession with inflation running at almost 23% and unemployment at almost 1.5 million and still climbing. Lacking orders from other customers, many defence contractors were in a position to complete work ahead of schedule and to bill the Government accordingly. Unfortunately, the Government did not have the money to hand to pay these early invoices, and, in July 1980, Francis Pym, the then Defence Minister, placed a moratorium on spending on defence contracts. Following Pym's removal from the Defence brief and his replacement by John Nott on 5 January 1981, things became much worse. On 25 June Nott announced a series of cuts in defence spending amounting to £200-250 million... and, by the end of the year, the Commander had fallen foul of these cuts. Scammell was officially given the news on 23 December 1981, and, following a series of 'winding-up' meetings in February 1982, staff at Scammell were also informed that the project was cancelled!

However, Scammell remained determined to press on, and the many loose ends that inevitably remain on a project like this were tied up in such a way that the work could easily have been resurrected should the MoD have a change of heart...or should an overseas customer show an interest.

● In terms of reliability, the Commander was expected to achieve at least 3000 miles (5000km) as a 'mean distance between failures' (MDBF), in other words, the average distance travelled before maintenance or repairs are required.



● Looking very serious, John Fadelle takes the Commander's wheel.

WHAT NOW?

The cancellation of the Commander leaves the MoD and Scammell with a dilemma

The Commander project might have been cancelled, but, nevertheless, the Army's Antars were now about to enter their third decade of service. Reliability and performance were both becoming pressing issues, and, although the mid-life rebuild had bought perhaps another decade of service, the Antar was still not capable of moving the Challenger at its battle weight of 65 tonnes. There remained an urgent need for a new tank transporter. Anxious to save something from what was beginning to look like a fiasco, Scammell's managing director, Vic Wilkes, proposed to the MoD that perhaps there were other possibilities that could provide a suitable, lower-cost option.

One such was the Scammell Contractor which had been introduced in 1964. The Contractor had already been supplied as a tank transporter to the armies of Australia, Iraq, Israel, Jordan, Kenya, Kuwait, and Libya and, of course, along with the Antar was one of the vehicles that got this whole project started. However, despite remaining in production until 1983, and despite being available in seven basic configurations rated for gross train weights from 85 to 180 tons (86 to 244 tonnes), it was considered to be a little long in the tooth, and perhaps too 'commercial', to be a suitable replacement for the Antar. More appropriate, perhaps, were the Scammell – or Leyland – S24 and S26 trucks, two very different looking tractors that were actually quite similar under the skin. Both were relatively-new products, having been introduced during 1981, and both were rated for

● Publicity material produced by Scammell demonstrated that the Contractor was ideally suited to tank-transporter duties... the MoD begged to disagree, believing it to be both too old and too 'commercial'.

use with a 65-tonne semi-trailer. In both cases, power came from a Cummins NTE-350 turbocharged diesel engine, producing 350bhp (260kW) from a capacity of 14 litres (854in³), driving either all six wheels (S24) or the rear bogie only (S26), through a twin-plate clutch and 15-speed Fuller RTX-14615 transmission. Other power trains were available, including the Perkins RF-CV8 engine, and there was also a choice of manual, semi-automatic and automatic gearboxes. The off-road ability was minimal, but the maximum highway speed for both trucks was claimed to be 40mph (60km/h).

The bonneted S24 had the rugged Scammell appearance in spades, but the S26, fitted with the forward-control Motor Panels T45 cab that had been designed by Tom Karen's team at Ogle Design, had an altogether more commercial look about it. These trucks were essentially 'off the shelf' products, priced at somewhere around half the sticker price of the Commander. But, despite having been supplied to a number of nations for use in the tank-transporter role, they were a long way from the purpose-built Commander which the MoD had specified... and, in truth, neither was really an appropriate replacement.

● Well-armed Contractor Mk 1 destined for Iraq.

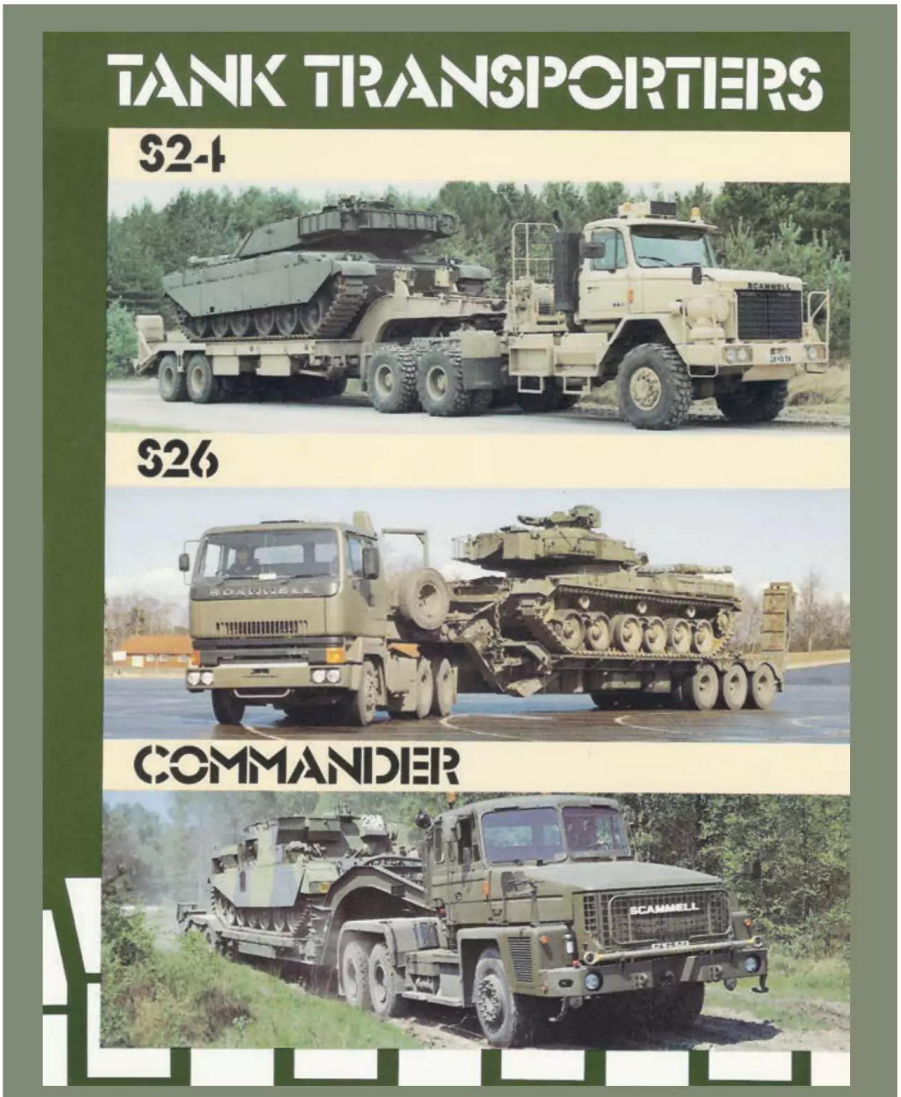
● A regular sight at British military vehicle shows, John Attlee's Contractor shows what might have been... albeit the military Contractor remains a fantasy. The load is a 61-ton (62 tonne) Conqueror Mk 2 armoured recovery vehicle. *(Wyrd Light Photography)*

● Cummins-engined S24 tractor, coupled to a twin-axle 65-tonne semi-trailer, onto which has been loaded a 62-ton (63 tonne) Challenger 1. Despite a claimed highway speed of 40mph (60km/h), the MoD remained unimpressed.

● Launched at the 1968 Commercial Motor Show, the Scammell Crusader was perfectly capable of pulling small armoured vehicles, in this case the FV180 combat engineer tractor (CET), but, even with the 305bhp Rolls Royce Eagle engine, it was hardly a contender for the tank-transporting role.

However, in replying to a letter he had received from Major General Dent, Director General of Fighting Vehicles and Engineer Equipment at the MoD, Vic Wilkes suggested that he would be happy to prepare a document comparing the Commander with the S24 and S26, and to arrange a presentation and demonstration of the latter two trucks in the Spring of 1982. As it happened, the demonstration was delayed until June, but, regardless, the MoD did not purchase any S24 or S26 tractors, nor for that matter, any other commercial vehicles, believing them not to be up to standard.

Interestingly, during May 1981, perhaps as a result of the moratorium on defence spending, the MoD had already sounded out Scammell and Cummins regarding the adoption of the S24 in place of the Commander... a full six months before the Commander project had been officially cancelled. And whilst many at the MoD were of the opinion that the S24 and S26 were not adequate for the tasks in hand, it is ironic that some six years later, in 1987, Number 7 Tank Transporter Regiment were operating what were effectively commercial vehicles, using them to supplement the Commanders. Both Numbers 16 and 617 Squadrons had one troop of 26 6x4 Scammell Crusaders each, together with one troop of 38 Mercedes-Benz 26-44 6x4 tractors, the latter hired from Ryder for a period of seven years. And, whilst their



● Dated 1981, this Scammell publicity brochure sets out the basic performance of the Commander and the S24 and S26 tank transporters. Whilst the S24 and S26 were promoted as providing a 'cost-effective solution', the Commander was described as having 'extremely high on-road performance', combined with 'some off-road capability'.

● The S26 was a forward-control Cummins-powered tractor rated for use with a 65-tonne semi-trailer but was not much more than a warmed-over commercial vehicle. Again, the MoD gave a firm 'no'.

Commanders were busy with Operation Granby in 1991, the Mercedes-Benz tractors were perfectly able to perform many of the lighter tasks in BAOR (British Army of the Rhine), as well as being despatched to Bosnia in 1995 to assist the UN peace-keeping mission.

However, with the possible purchase of the S24 and S26 tractors unlikely, and with the Commander project firmly on the back burner, the only thing left to the Scammell team was to wait!

● Note how the S24 has the luxury of an air-conditioned cab... probably an indication that most buyers were likely to be in the Middle East.

GROUP 23

GROUP 2320 Trucks and Truck Tractors, Wheeled — Ground Effect Vehicles, Motor Vehicles, Trailers, and Cycles

SCAMMELL — MILITARY VEHICLES

SCAMMELL S24 6 x 6 TANK TRANSPORTER

THE COMPANY

Scammell Motors is a leading manufacturer of heavy military trucks in Great Britain. As a division of Land Rover Leyland, Scammell has access to substantial resources and some of the most advanced facilities and truck technology in Europe. Engineering skills developed over 60 years' involvement in military and civilian trucks are the hub of Scammell success. These skills together with advanced manufacturing technique and quality control, which exceeds those laid down in the British Ministry of Defence 05 - 21 and NATO AQAP1 standards, are responsible for the modern product range available from Scammell.

The product line consists of two carefully planned modular families of forward and normal control trucks on two, three and four axles with a wide range of power train options and a high degree of flexibility on application. In addition a specially designed high performance tank transporter and airfield crash tenders are available.

Scammell vehicles are operating and supported on every continent and designed for worldwide environmental conditions.

TANK TRANSPORTERS

Recognising the role of a transporter to deliver a tank to the theatre of operation, efficiently, reliably and fast, Scammell has developed a range of tank transporters to suit the individual requirements of armed forces throughout the world.

S24 is a normal control 6 x 6 tractor capable of all-terrain, all-climate operation. A choice of power units is available ranging from 350 - 430 bhp, driving through either manual or automatic transmission.

S26 is a forward control 6 x 4 tractor providing the most cost-effective on-road solution. Powered by 350 bhp engine the S26 also has the choice of manual (or automatic transmissions).

COMMANDER - Powered by 625 bhp engine this 6 x 4 normal control tractor provides extremely high on-road performance.

SCAMMELL COMMANDER 6 x 4 TANK TRANSPORTER

SCAMMELL MOTORS - Leyland Vehicles Ltd.
Tolpits Lane
GB-Watford, Hertfordshire WD1 8QB
Tel.: (0923) 44211, Telex: 261760

Further entries:
Other products:

● A page from the '*International Defence Equipment Catalogue 1985/86*' promoting Scammell's three tank transporters... the Commander, the S24 and the S26. Apparently, these three vehicles were designed to 'suit the individual requirements of armed forces throughout the world'.

RESURRECTION!

The Commander is reinstated... and this time it's serious

Despite the cancellation of the Commander project at the end of 1981, there was always the possibility that either the project would subsequently be reinstated, or that an overseas buyer could be persuaded to place an order for a truck that was almost ready to drive away! Reluctant to simply wait and see what happened, the Scammell team did not stop work... which was just as well, because in the final quarter of the fiscal year 1981-82, the MoD found that it had a sum of money available that had been underspent elsewhere. Informal contact was duly made with Vic Wilkes at Scammell and discussions were opened regarding the urgent reinstatement of the project.

● Photographed during automotive trials, 06SP04 demonstrates how close the appearance of the validation vehicles came to the production Commanders... the script version of the model name helps to identify this as one of the three validation tractors. The trailer, numbered TL2, carries a Chieftain main battle tank.

● 06SP04, seen here checking bridge clearances, was a reworked version of the engineering model, now described as a 'validation' tractor.

Eventually, in October 1982, Scammell was officially approached by the MoD with a firm proposal to resume development of the Commander. The engineering team was reassembled under Don Pearson, with John Fadelle as his assistant, and a meeting was hastily convened to discuss the Schedule of Particulars. On 22 December, almost exactly one year to the day since the project had been cancelled, Terry Knight, Director of Contracts for Fighting Vehicles and Engineer Equipment, wrote to Vic Wilkes stating that 'it has now been decided to go ahead with the purchase of the 62 tonne tank transporter train, as developed under contract WV 11971'. The reference to the weight capacity as being 62 tonnes was presumably based on the combat weight of a Challenger... the correct weight was 65 tonnes.

Three new prototype validation tractors were to be produced, as well as two semi-trailers, enabling the validation trials to continue with four complete trains. At the same time, the production contract was issued, calling for a further 122 tractors and 113 semi-trailers, with the validation tractors ultimately being re-worked to production standard bringing the total quantity of Commanders to 125, with 117 (or maybe only 115) semi-trailers. Production was due to start as soon as

● During the 1980 automotive trials, the Cummins-engined tractor was partially destroyed by fire, and the decision was taken not to rebuild it.

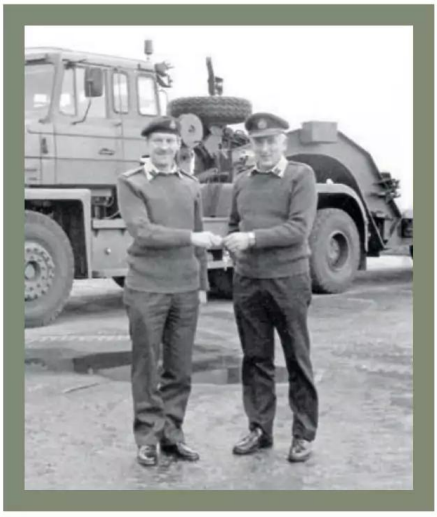
the validation trains had completed 20,000 miles (32,000km) of running, and delivery was scheduled to begin with 22 trains in April 1984; completion was required in two batches, the first consisting of 101 tractors and 93 semi-trailers, with the balance delivered by February 1986. The price of one complete train was £218,000... giving a total contract price of £27.25 million.

The question of which engine to use had yet to be settled. Despite the engineering staff at Scammell and the MoD preferring the Cummins KTA-600, when the engine choice was finally made in late 1982 it was for the Rolls-Royce CV12-TCE, and the Cummins option was dropped. The Cummins-engined tractor (06SP02) had already been partially destroyed by fire whilst at the MVEE Bagshot site during the 1980 automotive trials, and the decision had been taken not to rebuild it.

The winch also proved to be something of a problem. Turner-Spicer had been the original supplier but when asked to become involved again, they came over all coy, declining to quote and stating that the original winch on which their bid had been based was no longer available and that they could not offer any other suitable product. There were

● Tractor 06SP02, seen here before registration, was fitted with the Cummins KTA-600 engine. Note the absence of the heavy tubular radiator guard.

● Aerial view of the Watford plant showing the new production facility that was opened in 1983.



● The first production Commander, 52KB57, was handed over to Major General WL Whalley and Major General DH Braggins at Ludgershall on 24 February 1984.

no other manufacturers of heavy-duty winches in Britain, forcing Scammell to approach Rotzler Gmbh, who agreed in principle that their Type 914431 20-tonne two-speed machine would appear to fit the bill.

By July 1983, a re-worked version of the engineering model, now designated TR1, with chassis number WHV 4588, and retaining the registration number 06SP04, was back under test at MVEE with trailer TL2. By the end of the year the engineering model was joined by the three validation vehicles, constructed on chassis numbers SBSCMW-50LSDE 78000 to 78002. A number of problems

SCAMMELL
52 KB 36

● 'Little and large'... what would have been marketed as a Scammell MH6 Mechanical Horse is dwarfed by the first Commander of the validation build. Geared down to handle 6-ton loads, hence the designation MH6, the Mechanical Horse survived at Watford until 1988 and now forms part of the British Commercial Vehicle Museum collection.

emerged during the trials, which called for rectification, but nothing was sufficiently serious to call a halt to proceedings and, anyway, production had actually started – using chassis number SBSCMW-50LSHE 78003 – even before these running trials were completed, meaning that some modifications had to be retro-fitted to early production vehicles. Once the trials were over, the three validation vehicles were refitted to bring them up to the same specification as the tractors coming off the production line.

The first production Commander to be completed was registered 52KB57 (chassis number SBSCMW-50LSKE 78019), and was handed over to Major General WL Whalley, Director General of Ordnance Services, and Major General DH Braggins, Director General of Transport and Movements, in a special ceremony at the Vehicle Depot, Ludgershall, on 24 February 1984. The keys were then passed to Lance Corporals Williams and Russell, and the Commander spent the rest of the day entertaining the press by loading and unloading Chieftains belonging to Number 4 Royal Tank Regiment. Larger than the Antar in every way – longer, higher, wider and heavier –

● A petrol-engined Antar Mk 2, stripped of its registration number, loaded onto a Commander... presumably on its way to auction.

● Chieftain main battle tank loaded onto a factory-fresh Commander.

● Most Commanders spent their working lives in West Germany... ready for action should the Cold War unaccountably become hot.

the Commander no doubt put on an impressive display.

The remainder of the first batch was delivered by the middle of June, just six months behind schedule, and, during a parade at Fallingbostel a Commander belonging to Number 16 Tank Transporter Squadron, was ceremonially loaded with a Challenger main battle tank. A demonstration of the Commander was also held in Britain by Number 414 Tank Transporter Squadron at Ward Barracks, Bulford, Wiltshire. Both of these tank-transporter companies formed part of Number 7 Tank Transporter Regiment, the only unit to operate the Commander.

● Photographed in the Krivolak NATO training area in Macedonia in 1999, this Commander, belonging to Number 19 Squadron, carries a Warrior infantry fighting vehicle (IFV). *(Ministry of Defence)*

● 52KB85 belongs to the REME Museum, now based at the MoD Lyneham site, in Wiltshire. At a push, the jerrycan of fuel strapped to the leading edge of the rear mudguard should be good for just over 12 miles (20km). *(Ian Young)*

● Instrument panel layout of the engineering models.

● A total of 12 Commanders were fitted with removable steel ballast bodies allowing the tractor to be used for towing or recovery work.

● The Cummins-engined tractor, 06SP02, photographed complete with semi-trailer and Chieftain main battle tank load.

Production

Work on the first production Commander started on 2 January 1983, with an average time of something like four to five weeks required to complete a single vehicle, and with four or five units completed every month. During the construction process, each Commander chassis was mounted on a heavy wheeled trolley to facilitate moving it around the plant as the various components were added. Each vehicle was assigned a works order number, running from 43301 to 43425, and the work was carried out under MoD contract FVE 22A/206.

The assembly work was carried out at Scammell's Watford plant, located on Tolpits Lane. Formerly farmland, half of the factory site was owned by the local council, but it had been occupied by Scammell almost since the creation of the company in 1922. Although extending across several acres, the site was bounded by the Euston-Birmingham railway line on one side and by council-owned allotments to the rear and on the other side, and there

● TOP Under-bonnet view showing how the massive Rolls-Royce Eagle CV12-TCE fills the engine compartment.

● LEFT Excellent view of the Commander's left-hand side... also taken during exercise 'Iron Hammer'. *(Michael Jerchel via Carl Schulze)*

● BELOW 53KB15 loaded with a Challenger 1 and ready to roll. The photograph was taken during exercise 'Iron Hammer 1988' in the vicinity of the village of Jeinsen. *(Michael Jerchel via Carl Schulze)*

● The ballast body, fitted over the rear axles in place of the fifth wheel, was complete with mudguards and walkways.

● 52KB56 and 52KB50 assigned to Number 19 Tank Transporter Squadron, and photographed at Ward Barracks, Bulford in Wiltshire.

● Based at Cromwell Barracks, Hamm in West Germany, the bumper ends of Number 617's Commanders were painted red and white in a nod to the colours of the Polish flag.

was little room for expansion, leading to a satellite plant being established at nearby Moor Park. Nevertheless, a huge new production facility was opened at Watford in 1983, with a nominal single-shift capacity of 2000 trucks a year, giving Scammell what was described at the time as 'a modern state-of-the-art facility with a moving production line'. It was, presumably, on this line that the Commanders were constructed.

Dozens of different companies were involved in producing components for the Commander. Engines, of course, were supplied by Rolls-Royce Military Engine Division from the old Sentinel factory at Shrewsbury, and the transmission from GM Allison,

● 52KB64 complete with Cranes semi-trailer and appropriate load... looking every inch the Cold War warrior.

● Fine side elevation view showing how the largest main battle tank fits snugly onto the deck of the semi-trailer behind the wheel arches. *(Michael Jerchel via Carl Schulze)*

with plant located in Detroit. Chassis components came from Rockwell Thompson, and cabs were supplied by Motor Panels (Coventry) Limited, with the front mudguards produced by Park Sheet Metal, and the enormous bonnet moulding coming from Hunting Industrial Plastics. The steel ballast bodies that were fitted to a dozen examples were produced by Universal Engineering. The fifth wheel coupling

● There can be no argument about the impressive appearance of the Commander tank-transporter train... the tractor weighs 21.4 ton (21.8 tonne) and the unladen trailer adds a further 15.1 ton (15.4 tonne), and the permissible gross train weight is 102 ton (104 tonne).

was manufactured by Davies Magnet Works, and the winches were supplied by Rotzler at Steinen, West Germany.

The last vehicle started down the production line on 19 December 1984.

The special 65-tonne semi-trailer was designed and constructed by Crane-Fruehauf at South Green, Dereham, Norfolk. The completed semi-trailers were supplied direct to the Army at Ludgershall depot rather than to Watford.

● Tractors 11 and 15 of B troop, Number 19 Tank Transporter Squadron.

● 52KB93 and 53KB58 photographed in West Germany. A total of 91 tractors and 83 semi-trailers were eventually deployed to BAOR.

● One of a handful of Commanders to have survived in Britain, 52KB85 was photographed at the REME Museum.

● If you look carefully you can see a Thornycroft Antar Mk 3 behind this newly-delivered Commander... once deliveries of the Commander started, the Antars were swiftly disposed of, with most having been sold at auction by 1986.

THE POWER & THE GLORY

The Commander described in detail

In September 1978, the Commander was described by Scammell in publicity material as 'a 6x4 bonneted tractor primarily designed for operation with suitable semi-trailers to carry heavy tracked military vehicles of up to 65 tonnes... but may also be used for high-speed haulage of heavy, indivisible loads. It can function in the widest range of operational modes and in the fullest range of environmental conditions. It has sleeping accommodation and sufficient stowage capacity to permit independent operation. A heavy-duty winch is standard for self-loading dead loads and the tractor is fully equipped with recovery fittings'. Not exactly pithy, but a fair summing-up of the vehicle and its capabilities.

Six years later, in 1984, and with the Commander finally in production, Leyland's press releases were more boastful, speaking of the vehicle's ability 'to provide hill climb and acceleration comparable to a 38-tonne articulated vehicle...', and claiming that the Commander was 'the heaviest truck permitted on UK roads under normal conditions'. Although what they weren't mentioning was the length of the gestation period!

Nomenclature

The Commander was never allocated an 'FV' number, but the NATO Stock Number was '2320 99 893 6338', and it was assigned the nomenclature 'Tractor, wheeled, semitrailer, 98 tonne GCW, 6x4, LHD, Scammell Commander'. The Royal Army Service Corps (RASC) and Royal Corps of Transport (RCT) inventories identified it as 'VB1580', and later as 'B28 1580 8100'.

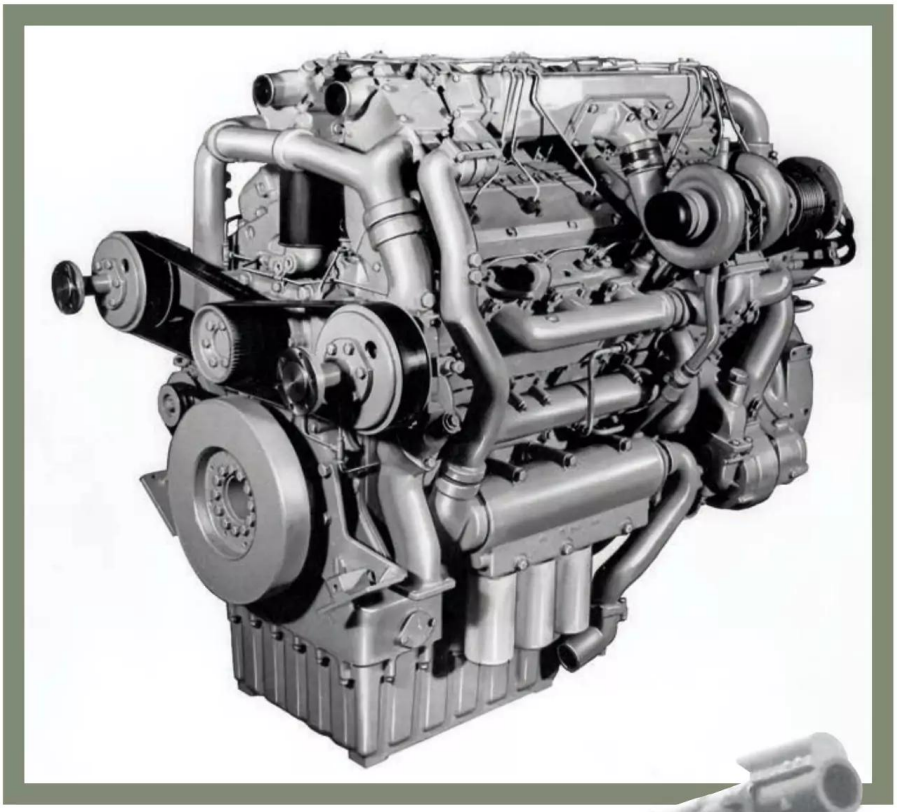
At around the time of Operation Telic, the Commanders started to be referred to as 'heavy equipment transporters', or HETs, rather than simply as tank transporters, presumably in recognition

● Loading a Chieftain main battle tank... as the tank comes over the rear wheels of the trailer the driver can see only the sky, and he must have absolute confidence in the man guiding him from the trailer swan neck.

of the fact that they were often being asked to carry loads other than just main battle tanks.

Engine

At the heart of the Commander's performance was the Rolls-Royce 'Eagle' CV12-TCE, a 26.1-litre (1593in³) turbocharged 12-cylinder direct-injection liquid-cooled diesel engine that, in this application, was capable of producing 625bhp (466kW) at 1200rpm, with a maximum torque level of 1680 lbf/ft (2285Nm) at 1400rpm. It was claimed to offer 'low fuel consumption'... although of course, in this context, the word 'low' is a very relative concept!

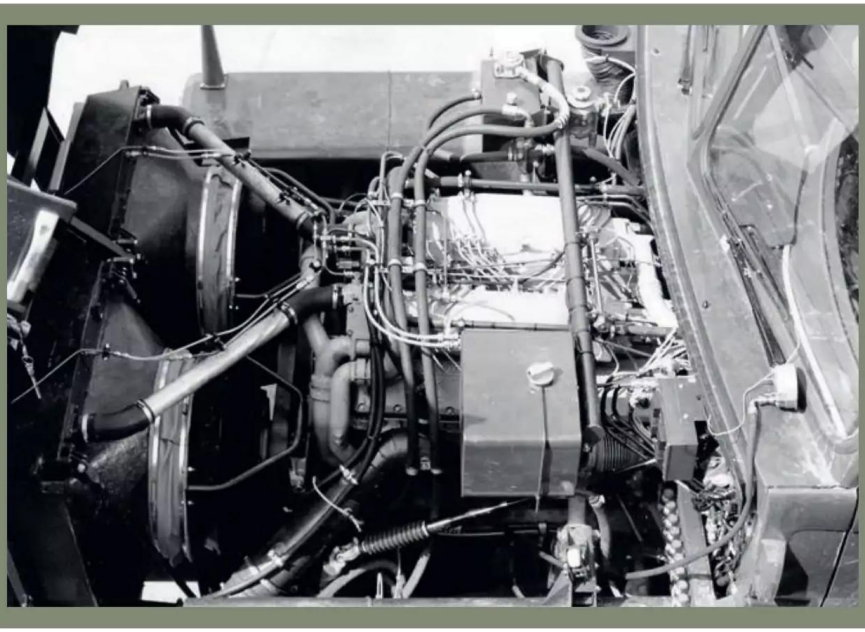


● At the heart of the Commander was the Rolls-Royce 'Eagle' CV12-TCE, a turbocharged 12-cylinder diesel engine producing 625bhp (466kW).

Scammell

SCAMMELL

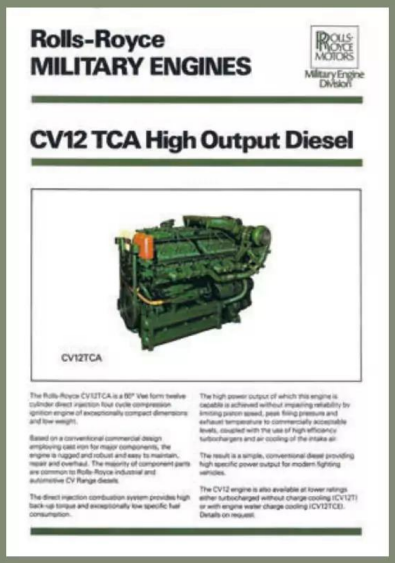
● Front page of Scammell's publicity material for the Commander.



● Under-bonnet view showing the massive twin fans. This is a test installation with additional instruments.

The engine was developed by Rolls-Royce Military Engine Division at Shrewsbury, and was introduced in 1978 with a view to providing a long service life, combined with a high power output and ease of maintenance. The rights to the design were sold to Perkins Engines in December 1983 following the bankruptcy of Rolls-Royce, and all subsequent production was dubbed 'Condor'. In 1997, Perkins Engines was acquired by the American company Caterpillar.

Constructed largely from cast iron, with replaceable slip-fit dry liners and aluminium-alloy pistons on side-by-side connecting rods, the engine operated at a compression ratio of 12:1, and weighed-in at a considerable 4000 lb (1815kg). There were four cast-iron

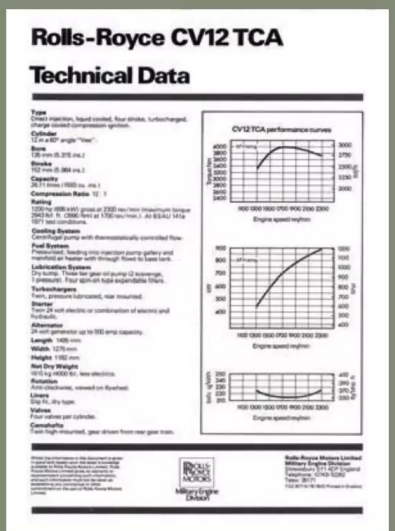

Rolls-Royce
MILITARY ENGINES

Military Engine Division

CV12 TCA High Output Diesel

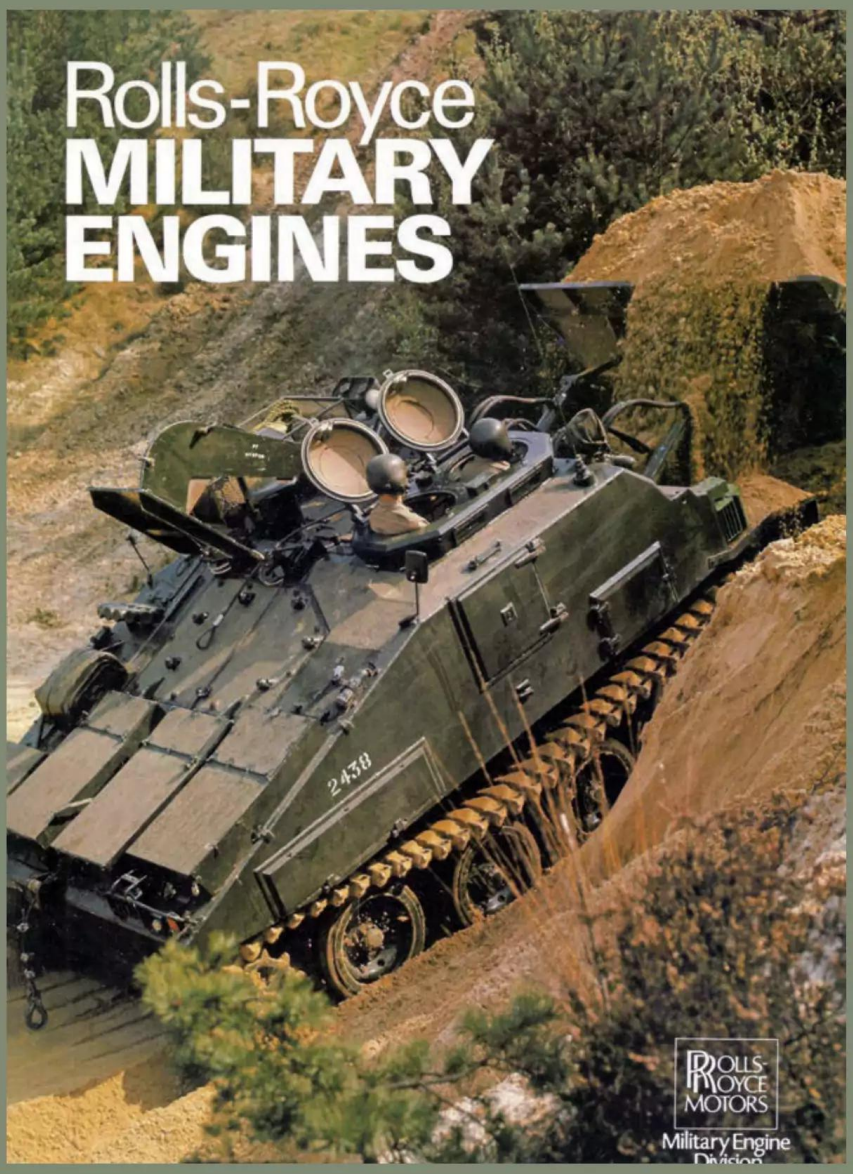
CV12TCA

● Rolls-Royce data sheet for the CV12-TCA high-output diesel as fitted to the Challenger 1 and 2 main battle tanks.


Rolls-Royce CV12 TCA

Technical Data

● The CV12-TCA engine was also fitted in the Challenger armoured repair and recovery vehicle (CRARRV), which was based on the hull of the Challenger 1, with the drivetrain of the Challenger 2.



● Rolls-Royce Military Engine Division brochure, dated June 1976... among others, the brochure describes the B60, B61, B80 and B81 petrol engines, and the CV8, CV12 and CV16 high-output diesel engines.

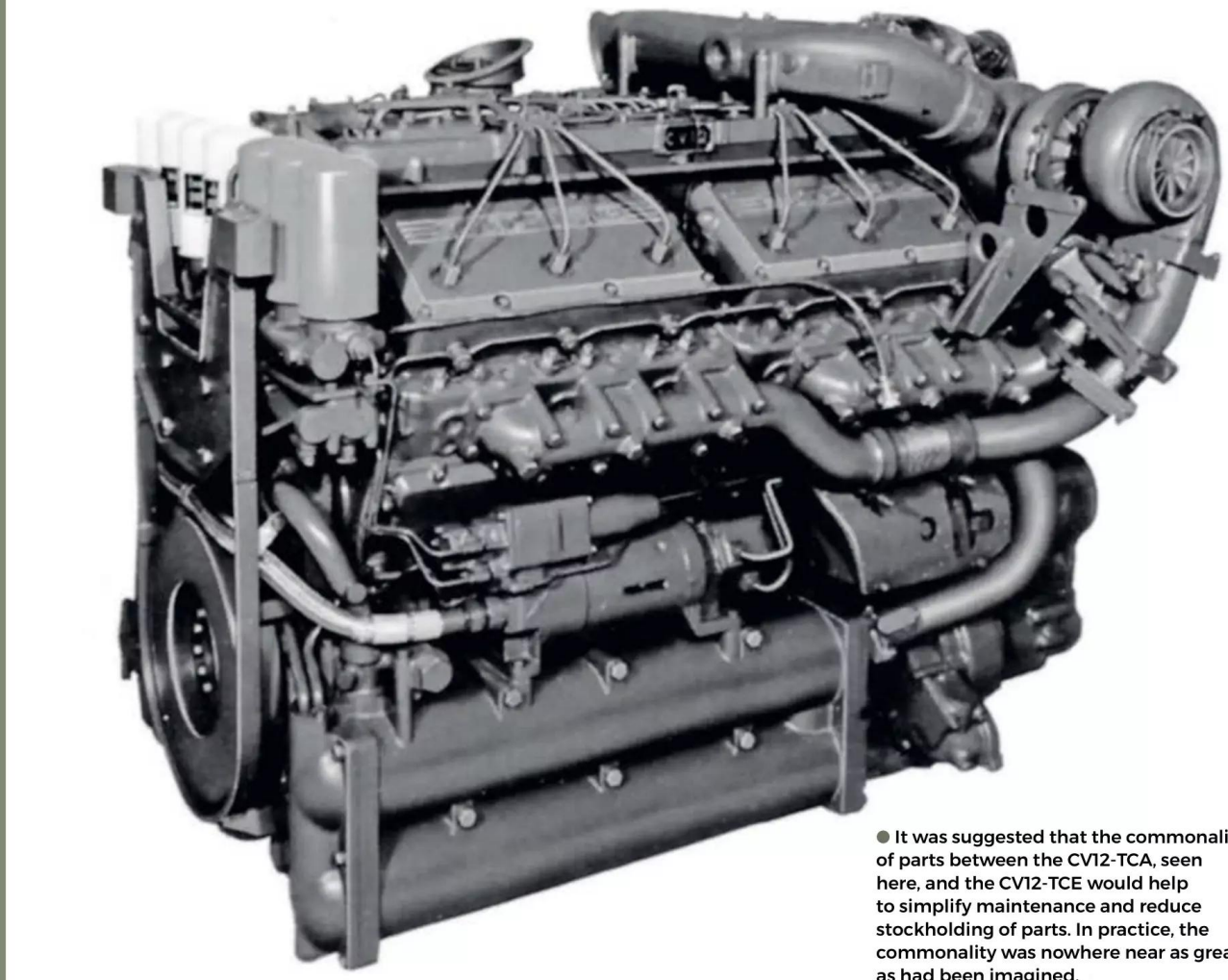
cylinder heads, each covering three cylinders, with four valves per cylinder running in Stellite-faced valve seats. The exhaust valves were hollow and were filled with sodium to assist cooling. The engine also featured a 'Start Pilot' cold-starting system capable of allowing the engine to start in temperatures as low as -24°C (-11°F). There were twin pressure-lubricated turbochargers, twin fans and radiators, a dry-sump lubrication system, and twin 24V starter motors. Water was used for the charge-cooling feature giving minimum power loss at altitudes above 8000 feet (2400m).

The fuel-injection equipment and fuel pumps were supplied by Lucas-CAV, who were also responsible for some of the fuel-filtration equipment, with additional filters coming from Tecalemit and Vokes.

In theory this engine was at least partially selected on the basis that it was also used in the Challenger 1 and, eventually, Challenger 2 tanks (CR1, CR2), as well as in the Challenger armoured repair and recovery vehicle (CRARRV) in the guise of the CV12-1200-TCA; it was also fitted to the Warrior infantry fighting vehicle as the eight-cylinder CV-8TCA. In practice, the commonality of parts was nowhere near as great as had been imagined and there was little simplification of either maintenance or parts stockholding.

Transmission

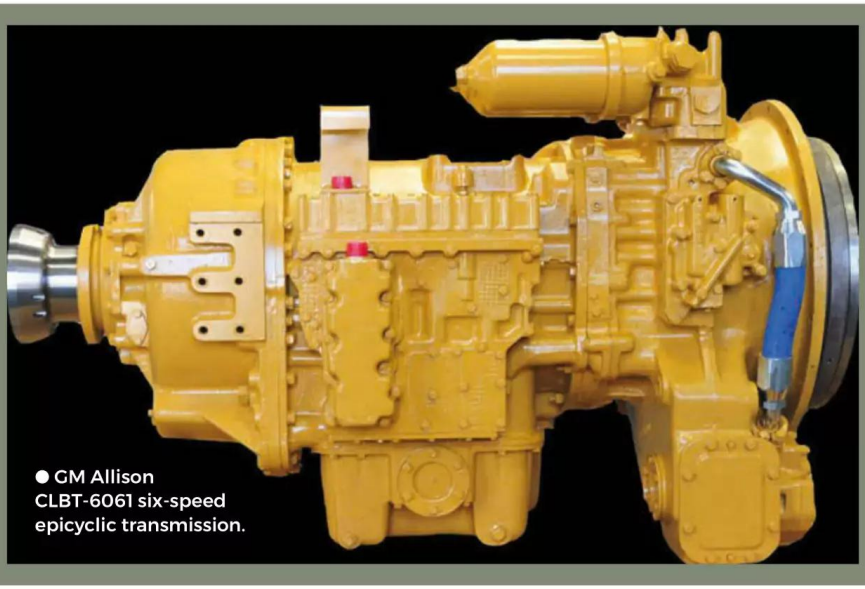
The transmission consisted of a remotely-mounted GM Allison CLBT-6061 six-speed epicyclic gearbox and



● It was suggested that the commonality of parts between the CV12-TCA, seen here, and the CV12-TCE would help to simplify maintenance and reduce stockholding of parts. In practice, the commonality was nowhere near as great as had been imagined.

torque converter, with a clutch-less semi-automatic shift system, connected to the engine via a short telescopic driveshaft. A hydraulic retarder was fitted to aid speed control on downhill runs. Of course, there was no front-wheel drive, so there was no transfer box, no splitter box, and no additional low-ratios.

The driver was presented with the normal complement of three pedals, accelerator, brake... and a gearbox speed retarder where the clutch pedal would normally be. However, the semi-automatic transmission required no clutch pedal, and gear changes were made using a pedestal-mounted turret to the right of the driver – all Commanders were left-hand drive – that was interlocked with the engine revolutions and road speed. This allowed the driver to manually select the next gear whilst still driving under power.



● GM Allison CLBT-6061 six-speed epicyclic transmission.

Axles and suspension

Although Kirkstall Forge had assisted with the axles for the prototypes, on production vehicles, both front and rear axles were made by Scammell. The front axle was rated at 12 tons (12.2 tonne), whilst at the rear, there were 40-tonne spiral-bevel, hub-reduction axles based on those used on the 240-ton Contractor, designed to ensure equal wheel loads regardless of terrain. A manual inter-axle differential lock was

installed in the leading axle casing.

The axles were carried on generously-sized semi-elliptical springs, with hydraulic dampers at the front. Location of the centrally-pivoted rear bogie was effected by rubber-bushed radius arms, with two arms installed above the axle and one below. Lateral location was handled by a Panhard rod.

Steering system

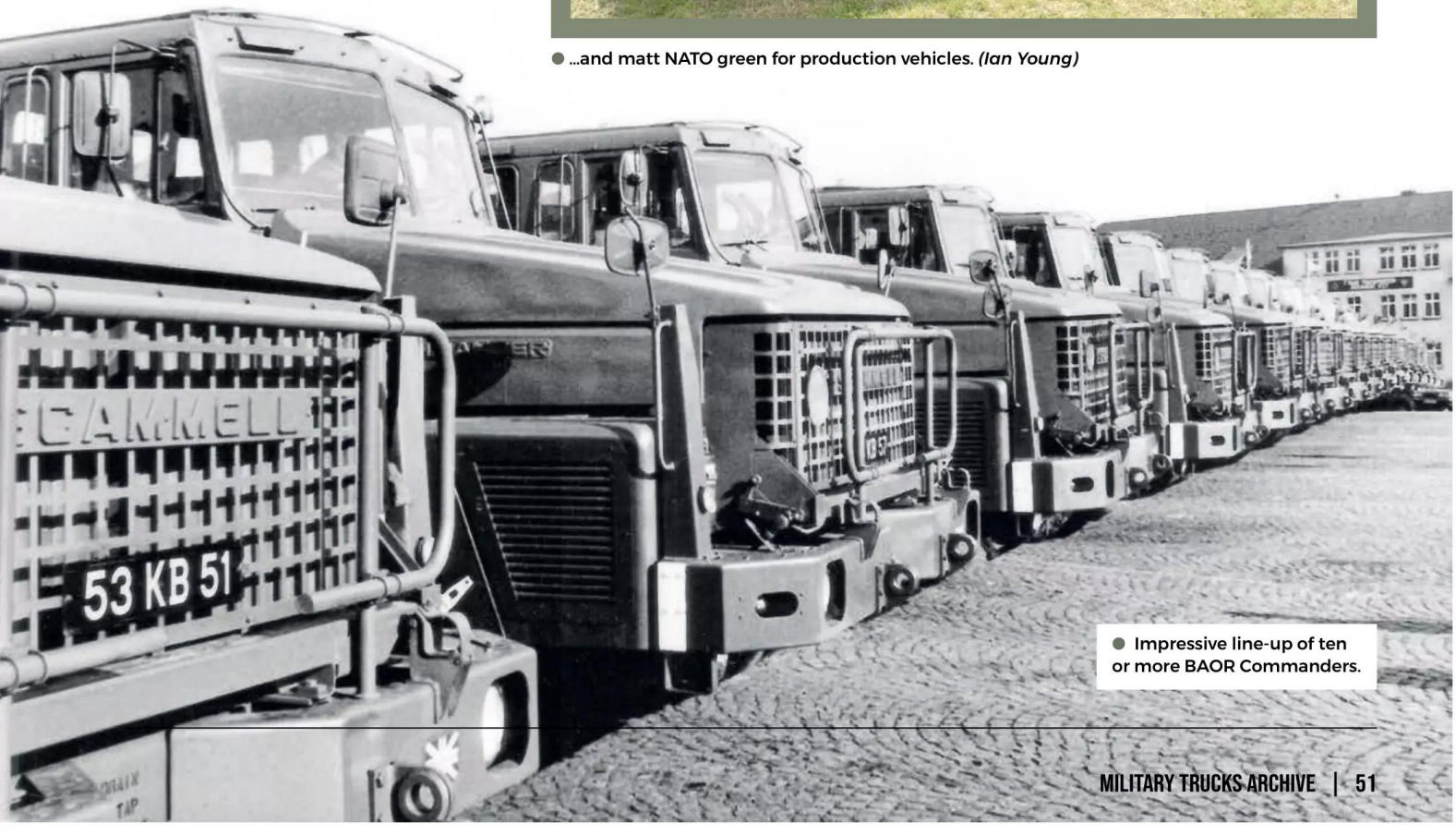
All Commanders had a left-hand driving position, with a ZF Type 7401 steering box giving a turning circle of 30 feet (9.15m) in exchange for five rotations of the steering wheel. The box was power assisted, with hydraulic rams operating on the drop arm and on the idler drop arm. The steering pump was driven directly off the rear of the engine, and, on late production vehicles, there was an electrically-operated emergency system that would be used in the event of engine failure or, if for any reason, a tractor was being towed without the engine running. The emergency system was retro-fitted to early vehicles.

Braking system

Girling Twin Stop air-brakes were fitted, with the two-line air supply coming from a pair of gear-driven Bendix-Westinghouse compressors fitted to the rear of the engine, feeding five reservoirs via a methanol air-drier.

● The cab was supplied by Motor Panels (Coventry) in fully assembled, painted condition. Gloss Deep Bronze Green paint was used for the prototypes... *(Ian Young)*

● ...and matt NATO green for production vehicles. *(Ian Young)*



● Impressive line-up of ten or more BAOR Commanders.

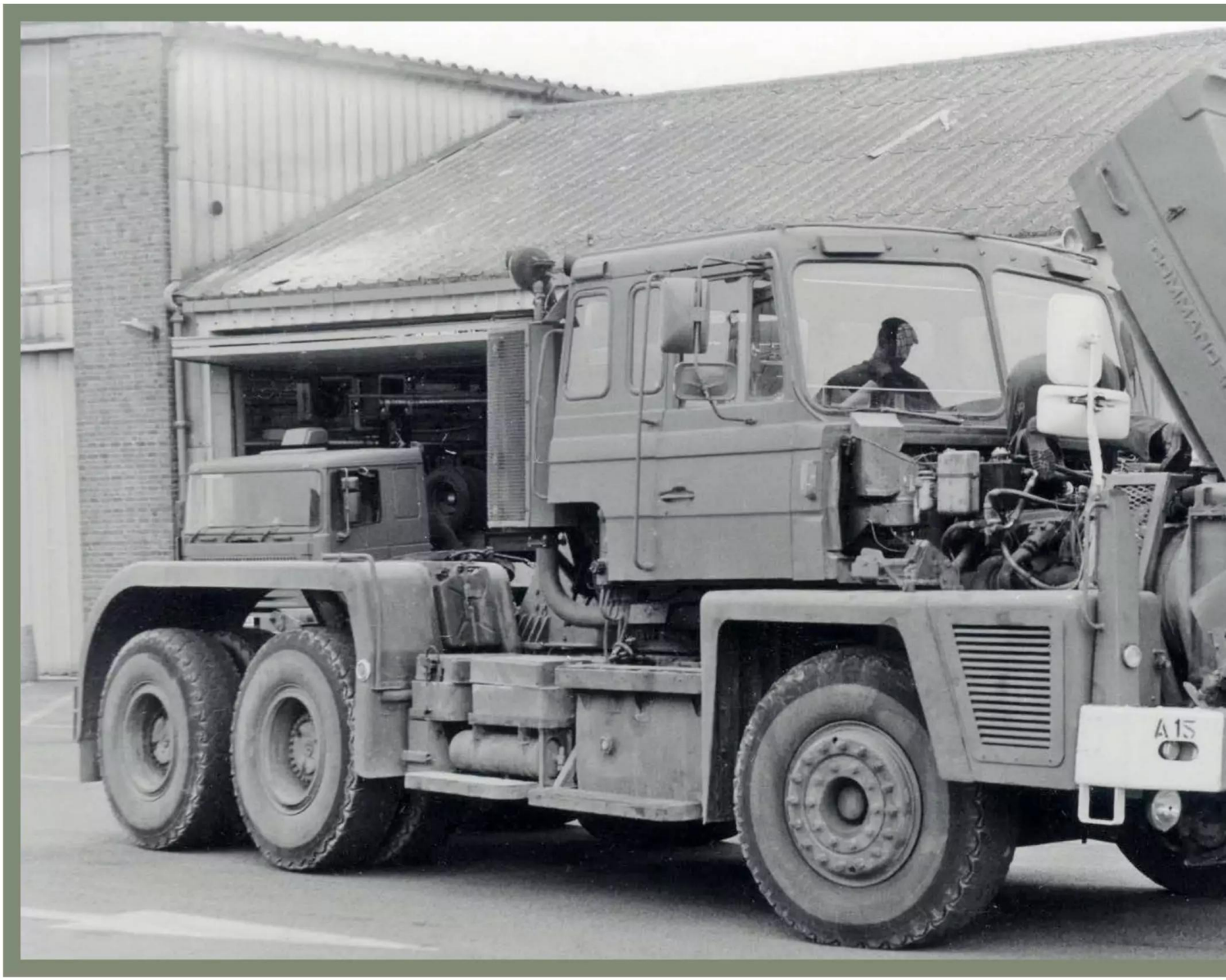
DESCRIPTION

Each of the bogie axles was fitted with a Girling Skidcheck anti-locking system. The maximum retardation figure (using the original asbestos-composite brake linings) was 0.4G.

The combined handbrake/parking brake system was also air operated, and air-line connections were provided at front and rear to connect to the trailer brakes, to permit tandem operation under a single control, or to allow a disabled tractor to be towed. The braking system air compressors could also be used for tyre inflation, and a two-position valve was provided between the left-hand fuel tank and the battery box to divert air to an inflator.

● The huge glass-fibre composite bonnet was manufactured by Hunting Industrial Plastics.

● The bonnet was mounted directly to the chassis and was independent of the cab. It was designed to tilt forwards for access.



● Ballast-bodied tractor photographed at Marchwood Military Port.

Chassis

The Rockwell Thompson frame was of bolted construction, and the main chassis members were heat-treated grade 50B steel channels, 0.5in (12.7mm) thick, with a depth of 12.36in (314mm) and a side flange of 3.5in (89mm). The frame was splayed to give a width of 40in (1020mm) at the front and 34.8in (884mm) at the rear, and the front and rear cross-members were reinforced and fitted with towing hooks. The frame was designed to offer torsional flexibility along most of its length, whilst also holding the bogie and the fifth-wheel mounting as rigidly as possible.

● The ballast body, which was fitted in place of the fifth wheel, was manufactured by Universal Engineering Limited.

COMMANDER
DO NOT MOVE

● Note the mixture of finishes on these validation vehicles... gloss Deep Bronze Green for the bonnet, matt NATO green for the cab and front mudguards, with black trim to the mudguard-mounted air intake grilles.

DESCRIPTION

The engine was mounted to the frame using a mixture of twin sandwich-rubber suspension units at the front, and Flexitor torsional-shear rubber spring mountings at the rear. These mountings helped to reduce vibration.

Twin fuel tanks were mounted under the cab doors, one each side, each with a capacity of 100 gallons (454 litres). Twin battery boxes were provided between the fuel tanks and the rear mudguards, each containing two 12V batteries.

Cab

The cab was a version of the standard pressed-steel Mk 4 two-door sleeper unit as supplied by Motor Panels (Coventry), with various modifications, including additional grab rails and a circular observation hatch in the roof allowing the use of an anti-aircraft or spotter's gun. There was accommodation for a crew of two in Bostrom air-suspended seats, with additional twin bunks fitted in the rear part of the cab, the upper one of which was split into three sections. There was plenty of stowage space for personal kit.

● Close-up of the battery master switch and starting socket at the right-hand rear corner of the cab.

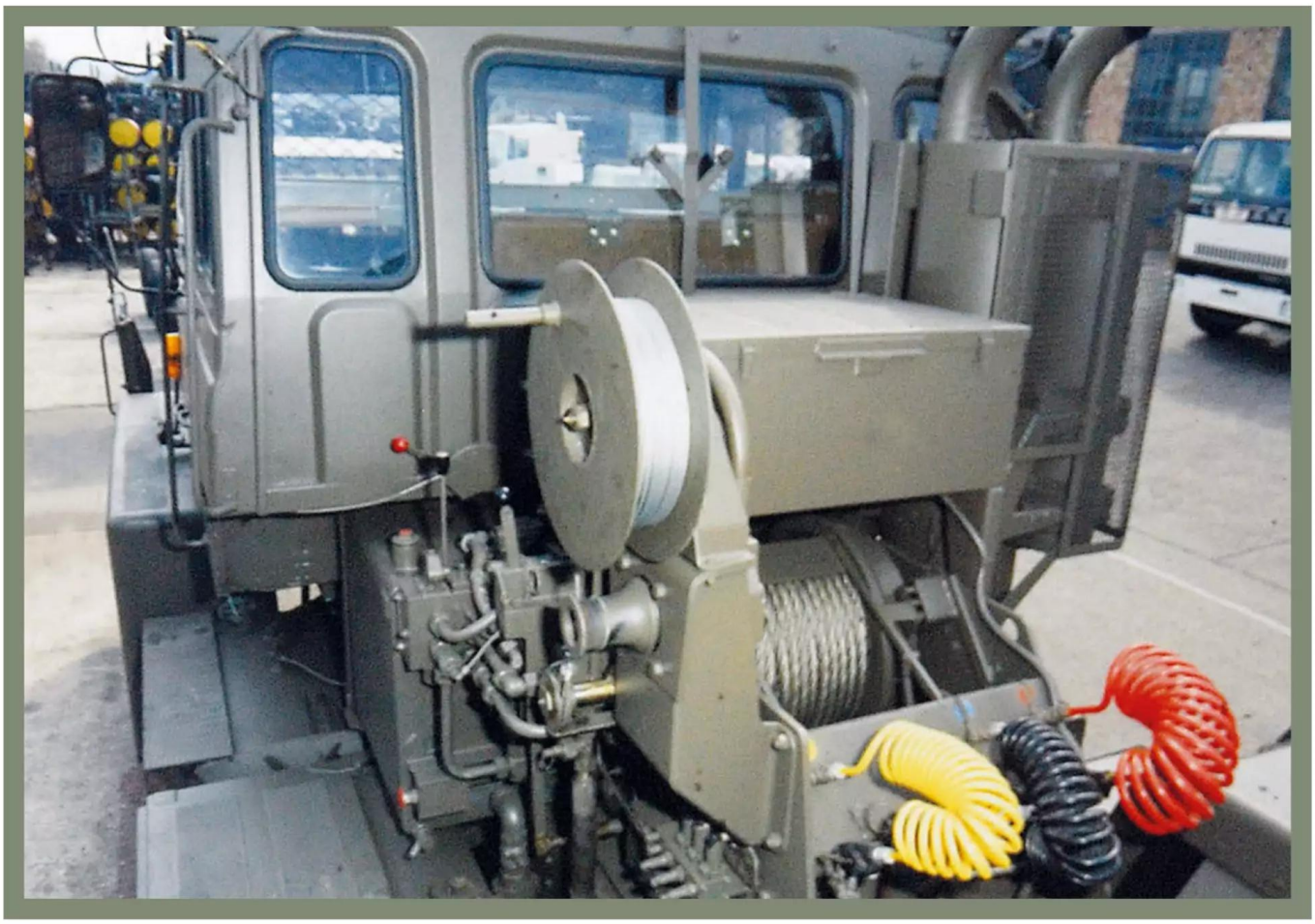
● Gearshift arrangements and instrument panel layout... note the lairy seat covering. All Commanders had a left-hand driving position.

A fresh-air blend heating and ventilation system was provided in the cab, and there were embedded electric heating elements on both sides of the two-piece windscreen... although the heater was installed only on the driver's side on the pre-production vehicles.

The front mudguards and the bonnet were supplied separately, with the mudguards coming from Park Sheet Metal, and the huge glass-fibre reinforced moulding that formed the bonnet, including a bonded steel tubular frame, came from Hunting Industrial Plastics. The bonnet was front-hinged to allow access, and was mounted independently of the cab. Self-adhesive anti-slip pads were applied to the rear upper surface of the bonnet, and to the upper surfaces of the front and rear mudguards.

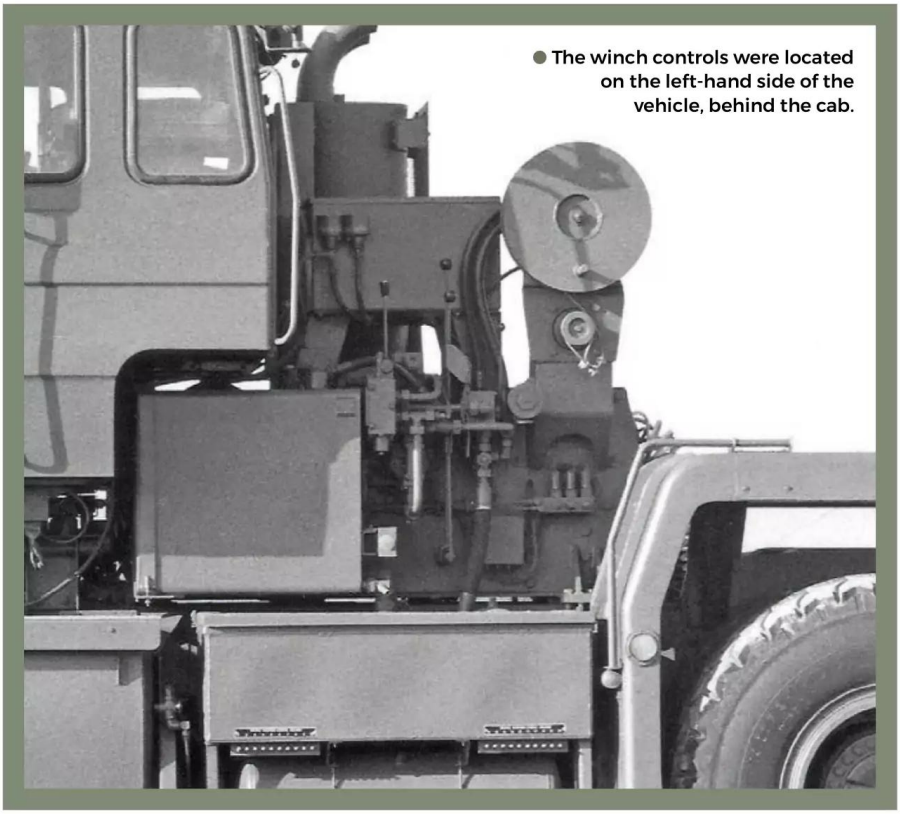
Motor Panels supplied the cab to Scammell in fully-assembled, painted and glazed condition, ready for final trimming. All production Commanders were finished in matt NATO Green infra-red reflective (IRR) paint. Vehicles that served in the Gulf were

● The overall length of the Commander, complete with its semi-trailer, was a massive 750in (19,042mm).



View of the Rotzler Type 914431 20-tonne two-speed winch. Note the manually operated capstan for handling the heavy cable of the main winch.

View of the fifth wheel, the rear winch rope rollers, and the folded 'A' frame.



● The winch controls were located on the left-hand side of the vehicle, behind the cab.

subsequently repainted in 'Light Buff' – although it is said that Number 414 Tank Transporter Unit used the wrong colour, forever earning them the nickname of 'The Custard Troop'. Those Commanders that formed part of the UN mission in Bosnia were refinished in White.

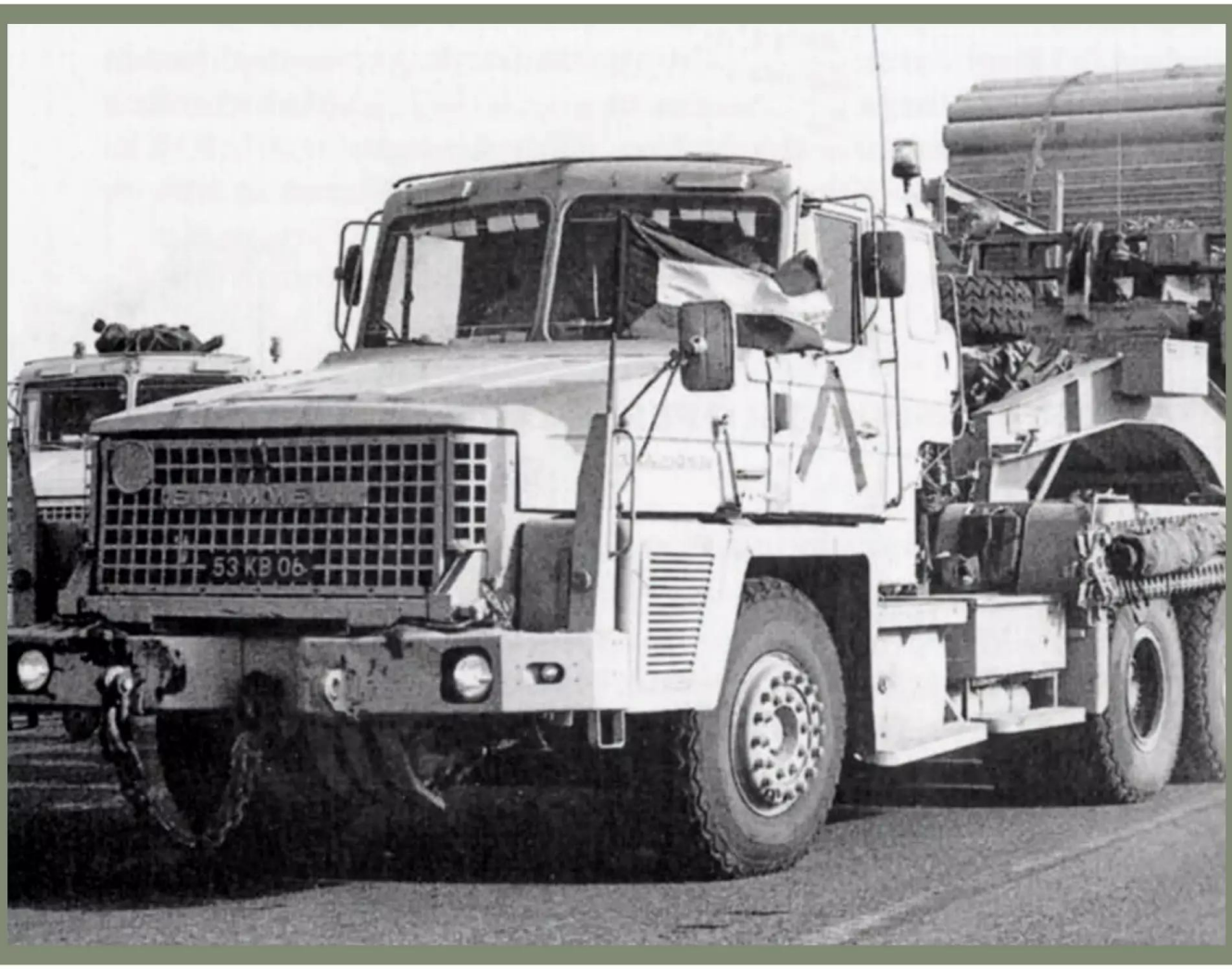
Ballast box

A total of 12 Commanders were supplied with a welded-steel ballast box, complete with mudguards and walkways, which was fitted over the rear axles in place of the fifth-wheel and the standard rear mudguards. The box, which was fabricated by Universal Engineering Limited, was designed to carry 20 tons (20.4 tonnes) of interlocking, cast-iron ballast weights arranged in three layers to provide sufficient traction to allow the tractor to be used as a towing or recovery vehicle for a disabled Commander.

● The Commander's road wheels are 10.00x24in fitted with Michelin XVC heavy-duty radial tyres... obviously they were not 'run-flats'!

● The Commanders were originally delivered to the Royal Corps of Transport but by 5 April 1993, following a merger with the Royal Army Ordnance Corps and others, this had become the Royal Logistic Corps. The Corps motto reads 'We Sustain'.

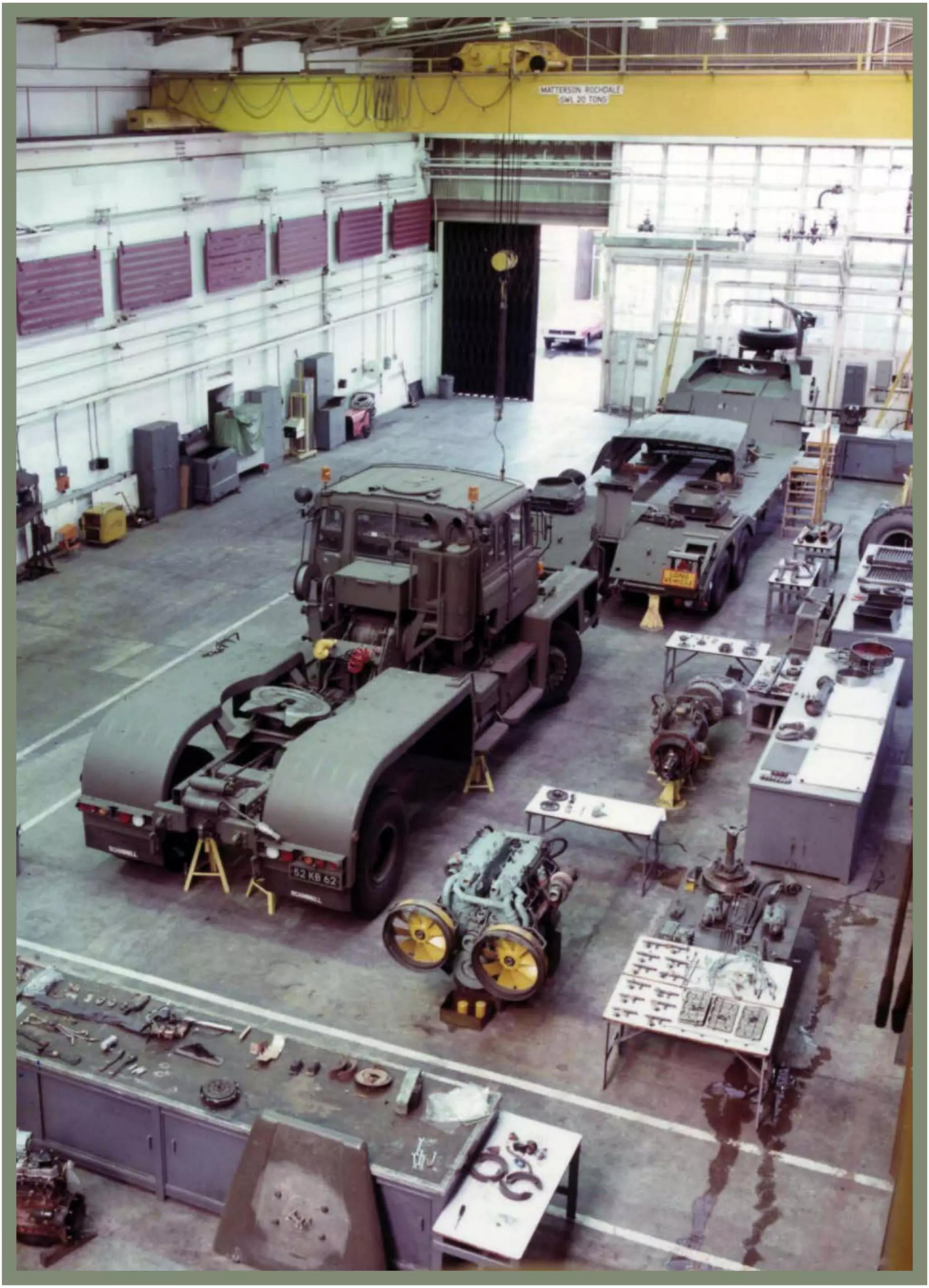
● Commander on parade... the sheer size of the thing always attract a sizeable crowd.



● Photographed during the liberation of Kuwait, this Commander carries an armoured recovery vehicle with a fascine bundle of plastic pipe sections.

● Decoupled from its semi-trailer, the Commander measures 355in (9011mm)... note that this tractor seems to have lost one of its twin tail pipes.

● Note the non-slip tread patches applied to the trailing edge of the bonnet.



● Partially dismantled Commander at the Royal Arsenal, Woolwich photographed during inspection at the Defence Quality Assurance vehicle testing facility. *(Crown copyright)*

Although it was necessary to remove the rear mudguards, it was straightforward enough to transfer the ballast box from one tractor to another, since the same mounting holes were used for the fifth wheel.

Electrical system

The main electrical equipment comprised six NATO UK6TN 100Ah 12V batteries arranged in series/parallel to provide a 24V negative-earth system, together with a CAV AC90 single-speed generator and regulator panel providing up to 500A. Under the right-hand rear corner of the cab, tucked into a rectangular recess, there was a battery master switch, standard NATO jump-lead socket, and an emergency stop button.

Instrumentation was comprehensive, and the big curved fascia panel included a speedometer and tachometer, as well as gauges for engine temperature, transmission oil temperature, fuel level, ammeter, braking-system air pressure, charging rate, and engine oil pressure. The equipment was well laid out across the fascia, with more warning lights than you could shake a stick at, including screen heater, rear fog lamp, roof beacons, alternator, oil pressure, anti-lock braking system, main beam, tractor indicators, trailer indicators, cold start, braking-system air pressure, handbrake, torque converter, trailer floodlight, tractor floodlight, power take-off, and third differential lock. Switches were provided for the two-speed windscreen wipers, the windscreen heaters, the various items of lighting equipment, differential lock, etc... and there was even a cigarette lighter!

There was no tachograph since, at the time, military vehicles were able to claim 'Crown immunity' from statutory requirements under common-law doctrine... the thinking being that the sovereign or state cannot commit a legal wrong!

Winch and tow bars

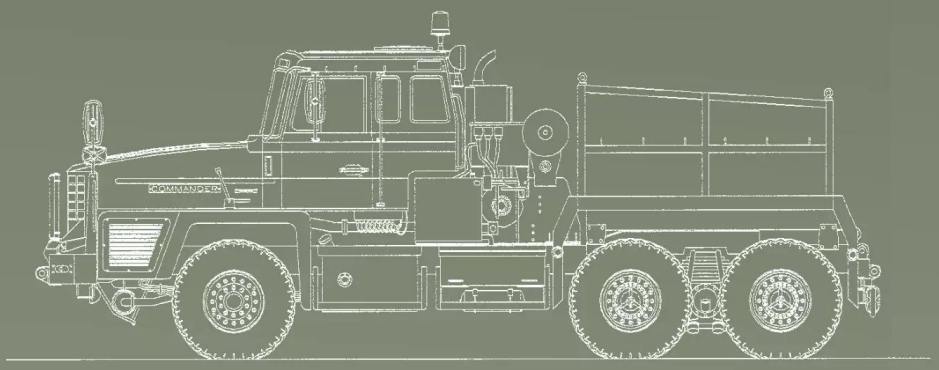
Turner winches had been used on all of the pre-production vehicles, but Turner declined to supply the equipment once production was underway and a Rotzler Type 914431 20-tonne two-speed hydraulic winch was installed behind the cab. The winch was driven by a

FACTS & FIGURES - SCAMMELL S25 COMMANDER

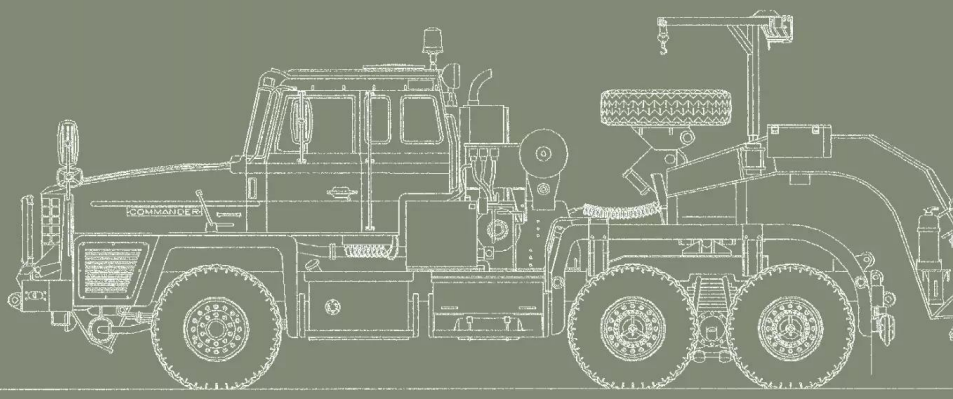
Engine: Rolls-Royce CV12-TCE, turbocharged diesel		
Cylinders	60° V12	60° V12
Capacity	26,100cc	1593in³
Bore and stroke	5.315 x 5.984in	135 x 152mm
Fuel	MT DIESO	MT DIESO
Power output at 2100rpm	625bhp	466kW
Maximum torque at 1400rpm	1680 lbf/ft	2285Nm

Performance		
Fuel consumption	2.82mpg	1km/litre
Maximum speed		
top gear, with 65 tonne load	38mph	61km/h
Maximum grade		
climbable at 20mph (32km/h)	1 in 40	2.5%
stop-restart	1 in 5	20%

Dimensions and weight		
Length		
overall, ramps raised	750in	19,042mm
tractor only	355in	9011mm
semi-trailer only	494in	12,550mm
Overall width		
tractor only	124in	3150mm
semi-trailer only	145in	3690mm

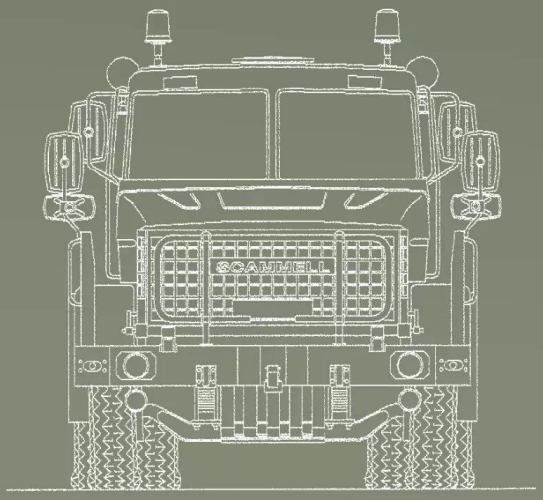


● Side elevation, ballast tractor

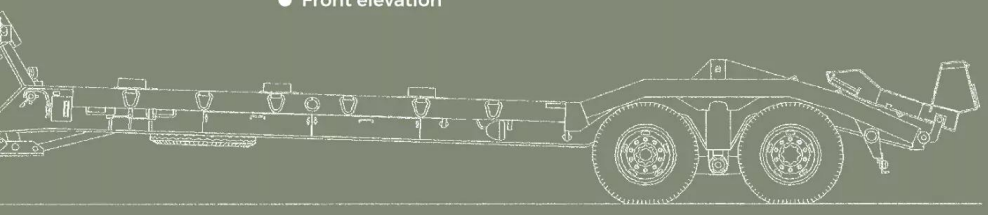


● Side elevation, tractor and semi-trailer

Dimensions and weight		
Height		
top of cab	132in	3356mm
trailer bed	39-45in	985-1135mm
Wheelbase, tractor	198in	5029mm
Bogie centres	63in	1600mm
Track		
front	96in	2440mm
rear	89in	2261mm
semi-trailer	80in	2040mm
Ground clearance		
belly, centre of tractor wheelbase	20in	500mm
belly, centre of semi-trailer wheelbase	23in	588mm
minimum	14.5in	370mm
Fording (unprepared)	30in	760mm
Turning circle	30ft	9.15m
Weight, unladen		
fifth-wheel tractor only	21.4 ton	21.8 tonne
ballast tractor only	22.1 ton	22.5 tonne
semi-trailer only	15.1 ton	15.4 tonne
complete train	36.5 ton	37.2 tonne
Maximum permissible laden weight		
fifth-wheel tractor only	51.4 ton	52.3 tonne
semi-trailer only	78.9 ton	80.3 tonne
complete train	102 ton	104 tonne
Bridge classification		
fifth-wheel tractor only	53	53
complete train	120	120



● Front elevation



power take-off on the gearbox, and the controls, including direction, speed, brake, and hand accelerator, were placed behind the cab on the left-hand rear corner. Guide rollers for the winch cable were provided at the rear and on the trailer swan neck. The winch also included a manually-operated capstan, designed for handling the heavy steel cable of the main winch.

The winch was intended only for loading and unloading disabled tanks; there was no provision to use it for self-recovery.

Each tractor also carried two tow bars. A straight bar was stowed across the front of the tractor, intended to be used for short pulls, and an 'A' frame was carried at the rear.

Semi-trailer

Designed and manufactured by Crane-Fruehauf, the 65-tonne welded-steel semi-trailer was unique to the Commander, and consisted of a main frame to which was attached a beaver-tailed fully-decked load platform supported by I beams and channels. At the front end, the trailer was carried on the fifth wheel, whilst at the rear, there were unsprung walking-beams, each carrying four pairs of wheels.

The loading ramps were adjustable to suit differing track widths, and removable ramps could be fitted at the front end, allowing the load to be moved as far forward as possible to allow a second vehicle to be carried behind. Folding legs were provided under the forward portion of the trailer deck,

Despite the Crane-Fruehauf trailer being rated at just 65 tonnes, it is interesting to note that by 2003, the British Army had already taken delivery of the entire contingency of around 450 Challenger 2 tanks, and had possibly withdrawn all examples of the Challenger 1.

Since deliveries of the Oshkosh did not start until 2003, there was clearly something of an overlap in the service life of the Commander and the Challenger 2, particularly early examples, and photographs certainly exist showing the Commander and semi-trailer transporting a 72-tonne Challenger 2 apparently without ill effect. It may not have been an ideal combination, but clearly it was possible.

BAOR, GULF WARS... AND THE FORMER YUGOSLAVIA

The Commander in service

When the drawn-out design process that ultimately resulted in the appearance of the Scammell Commander started back in 1968, the vehicle was very much a product of the exigencies of the Cold War. Its purpose was to ferry tanks and engineering equipment from British bases in West Germany eastwards towards the Soviet Union in an effort to stop the Red Army invading across the German plains. But the Cold War ended in 1991 without a shot ever having been fired... and by the end of that year, even the USSR had collapsed.

As seems to be the way of these things, new enemies were quickly identified. The Middle East moved up as 'public enemy number one', replacing the former-communist regime of the USSR. Ultimately, this led to Coalition forces removing the Iraqis from Kuwait and later liberating Iraq from the rule of Saddam Hussein, who was subsequently executed by his own people. You could be forgiven for imagining that the Commander, which had been intended for use on the roads of Germany might be out of its depth operating in harsh, desert territory, for which it had never been designed. On the contrary... it is testament to the rigour of the production process, and to the attention to detail that was apparent through the design and testing routines that the Commander had the highest availability figure of any Coalition military vehicle in Iraq during Operation Telic.

When they entered service in 1984, the Commanders were assigned to Number 7 Tank Transporter Regiment, part of the Royal Corps of Transport, and spent most of their working lives

● The Commander was built explicitly to handle the 65-ton Challenger 1 main battle tank.

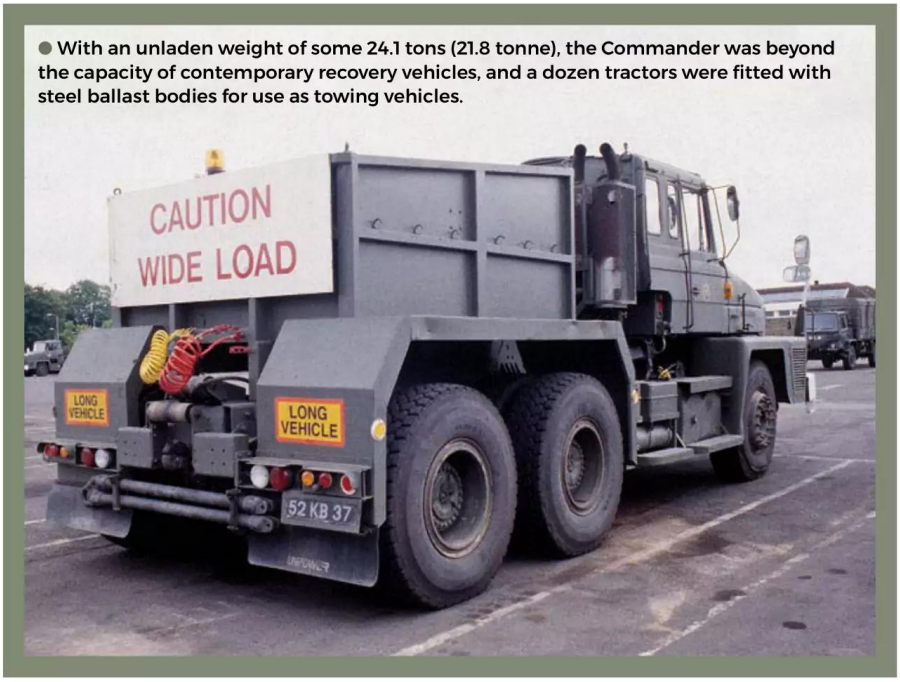
● The broad white-painted bumper ends indicate that this Commander belongs to Number 19 Tank Transporter Squadron, which is based at Ward Barracks, Wiltshire.

with the British Army of the Rhine (BAOR) in West Germany, where they were assigned to Numbers 3, 16 and 617 Tank Transporter Squadrons. Tactical markings for these three squadrons were 210, 211 and 212, respectively.

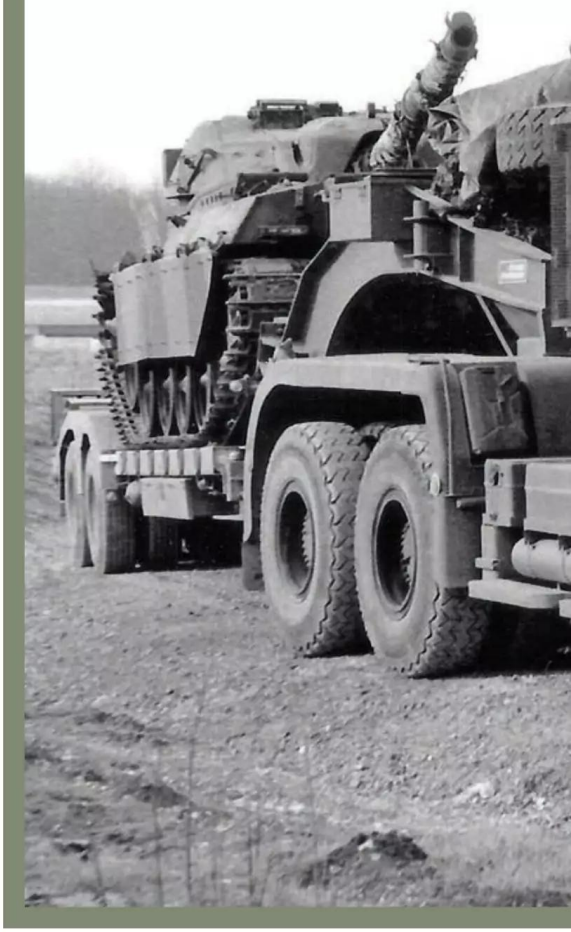
Number 3 Squadron was based at Antwerp Barracks, Sennelager, and had two troops of 36 Commanders; these could be identified by their white-painted bumper ends. Number 16 was at Saint Barbara Barracks, Fallingbostel, and, similarly, had 36 Commanders, as well as one troop of 26 Scammell

● A troop of 38 Mercedes-Benz 2644 tractors and semi-trailers were used to supplement the Commanders belonging to Number 617 Tank Transporter Squadron. Whilst not able to cope with the weight of a Challenger, they were perfectly able to handle, for example, a Warrior or a pair of FV432s.

● Challenger of Number 16 Tank Transporter Squadron, based at Saint Barbara Barracks, Fallingbostel. The yellow bumper ends give the game away.



● With an unladen weight of some 24.1 tons (21.8 tonne), the Commander was beyond the capacity of contemporary recovery vehicles, and a dozen tractors were fitted with steel ballast bodies for use as towing vehicles.



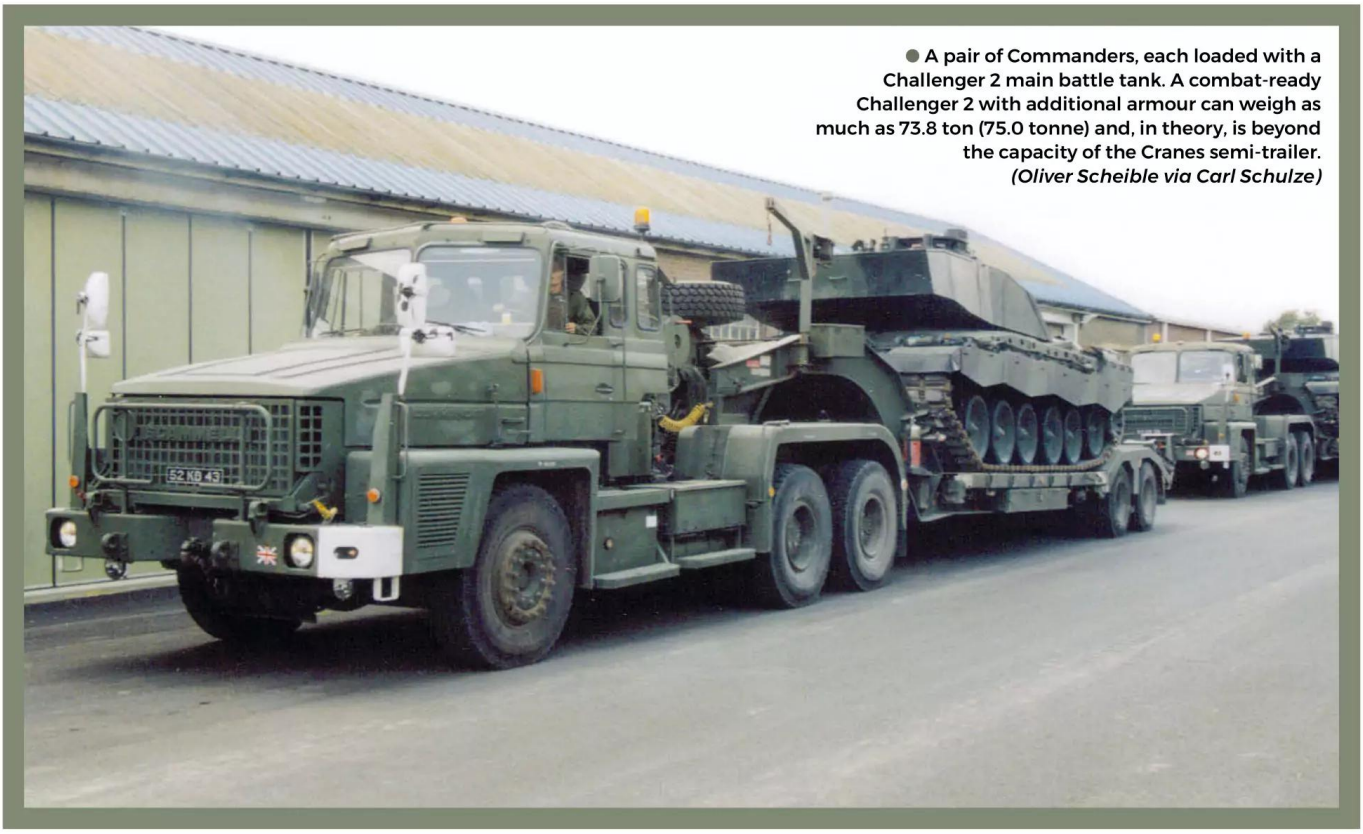
● The load is a Chieftain tank showing how it is presented to the semi-trailer... with the turret fully reversed and facing to the rear. *(Phil Moth)*

Crusaders, until these were replaced by Seddon-Atkinson trucks in the late 'nineties. Number 16's Commanders were identifiable by virtue of having yellow bumper ends. Number 617 (formerly 312 Tank Transporter Unit, MSO) was to be found at Cromwell Barracks, Hamm, with one troop of 18 Commanders, one troop of 26 Crusaders, and one troop of 28 (or possibly 38) leased Mercedes-Benz 2644 tractors and King semi-trailers.

The bumper ends of Number 617's Commanders were painted red and white in a nod to the Polish flag.

Between them, the three squadrons had the ability to move an entire armoured regiment, including support vehicles, in one lift.

In Britain, Commanders were allocated to Number 414 Tank Transporter Unit, later to be renamed as Number 19 Tank Transporter Squadron, and based, since 1969, at Ward



● A pair of Commanders, each loaded with a Challenger 2 main battle tank. A combat-ready Challenger 2 with additional armour can weigh as much as 73.8 ton (75.0 tonne) and, in theory, is beyond the capacity of the Cranes semi-trailer. *(Oliver Scheible via Carl Schulze)*

Barracks, Bulford, in Wiltshire. Their Commanders had white painted bumper ends... simply to indicate the width!

The first Commander was delivered to the Royal Corps of Transport on 30 March 1984. Following a period of familiarisation for the crew, which eventually settled down to a three-day routine, it was 'officially' accepted into service in early June. In the period that elapsed between March and June, all of the vehicles of the first batch were delivered and by the end of June most were in service with their respective units. Number 16 Squadron operated Commanders and Antars together for a short period but generally, the Antars were swiftly disposed of, with most having been sold at auction by 1986.

In all, a total of 91 tractors and 83 semi-trailers were eventually deployed to BAOR, and, until the end of the Cold War in 1991, the importance of the tank-transporter fleet in Germany cannot be over-emphasised... without the tank transporters, the 1st British Corps would have been unable to deploy to war. In the event of hostilities kicking-off, it was the role of 16 Tank Transporter Squadron to move the Centurion and Chieftain AVREs (armoured vehicle, Royal Engineers) and AVLBs (armoured vehicle-launched bridge) of the Royal Engineers Armoured Regiment forward from Dennis Barracks

● Based at Cromwell Barracks, Hamm, Number 617's Commanders have red and white bumper ends in recognition of the colours of the Polish flag. *(Michael Jerchel via Carl Schulze)*

at Munsterlager into what was described as the General Deployment Plan (GDP) area. Returning to their base at Sennelager, 16 Squadron would have joined the other two tank-transporter squadrons carrying the armour of 1st British Corps to forward locations. If possible, all three squadrons would have returned westwards to collect and deploy the armour of the main defensive battle. This would have required two regimental lifts.

The Regiment's final role, in the event of war, was to recover battle-damaged tanks and to transport these westwards for repair by REME, eventually recycling them back into combat. Army reorganisation after the end of the

● Rear view of the Challenger 2 on a 65-tonne Cranes semi-trailer. *(Oliver Scheible via Carl Schulze)*

Cold War saw Number 617 Squadron disbanded and its assets shared between Number 3, 16 and 414 Squadrons. At the same time, Number 414 was renamed as Number 19 Tank Transporter Squadron and was expanded to three troops, still based at Ward Barracks, Wiltshire.

On 5 April 1993, the Royal Corps of Transport, the Royal Army Ordnance Corps, the Catering Corps, and the Royal Pioneer Corps, and some elements of the Royal Engineers, were merged to form the Royal Logistic Corps. On formation day a ceremony was held at Deepcut Barracks in front of Her Royal Highness Princess Anne, who was Colonel in Chief of the new Corps. Number 19 Tank Transporter Squadron was among the units represented in displays. As its name suggests, the role of the new Corps was to provide logistic support to the British Army.

Tank transporters in Britain

The Commanders of Number 414 Tank Transporter Unit, later to be renamed as Number 19 Tank Transporter Squadron, provided the only military heavy-lift capability for armoured vehicles in Britain.

● Photographed near to the village of Jeinsen, this Challenger 1 is taking part in Exercise Iron Hammer 1988. *(Michael Jerchel via Carl Schulze)*

● Rear view of the Commander tractor, coupled to the Cranes 65-tonne semi-trailer... and a nice shot of the mud that tracked vehicles leave on the road! *(Michael Jerchel via Carl Schulze)*

● Commander of the NATO-led implementation force (IFOR) operating in Bosnia and Herzegovina from December 1995 to December 1996 under the codename Operation Joint Endeavour. *(Michael Jerchel via Carl Schulze)*

The Squadron's usual role was to move tanks between Bulford and Castlemartin, and latterly, Otterburn, and between Bulford and Marchwood Military Port, with convoys of up to 30 Commanders, accompanied by REME fitter crews in a large van or 4-tonne truck in case of problems, doing their best not to hold up the traffic too badly.

Other tasks occasionally cropped up to relieve the tedium and, in January 1996, for example, a convoy of 20 Commanders drove along a proposed access route to Otterburn Training Area prior to consideration by the Ministries of Defence and Transport as to whether or not this route could be made permanent... it was!

● A Commander assigned to the NATO-led IFOR operation receives a little under-bonnet attention. Note the diagonal markings on the rear-view mirror.

● Line-up of six Commanders, each loaded with a Challenger 1.

● During the Gulf War, the US Army's Oshkosh M911 heavy equipment transporters, seen here, were often supplemented by Commanders to assist with moving artillery and tanks.

Number 19 Squadron's Commanders were also involved in the delivery of new Challenger 2 tanks as they started to replace the older Challenger 1. The development of the Challenger 2 had started way back in 1986, with the delivery of an eventual 408 vehicles starting in 1993. Production took place at two primary locations, the Vickers site at Elswick, Tyne and Wear, and the former Royal Ordnance Factory at Barnbow, Leeds, and the last example was delivered in 2002. During this period, Commanders of Number 19 Squadron were used to collect newly-built tanks from the factories, ferrying them back to base at Bulford, before shipping them to Marchwood and then to West Germany.

● A Challenger 1 main battle tank belonging to 14th/20th King's Hussars is loaded onto the Commander's semi-trailer during Exercise Iron Hammer 1988. *(Michael Jerchel via Carl Schulz)*

34
KA
06

Commanders were hungry beasts, and the official history of Number 19 Squadron reports that during 1994 and 1995, for example, their Commanders consumed 400 tyres and 132,160 gallons (600,000) litres of diesel fuel, and drove a total of 1.06 million miles.

Commanders in the Middle East

As regards the Cold War, fortunately, push never did come to shove... and the Commanders were never required to prove what they could do when pitched against Soviet forces.

However, in September 1990, the Commanders were called to the Middle East when 23 tractors and 20 semi-trailers of 16 Squadron were deployed as part of Operation Granby. Within three months, a further 16 tractors and 14 trailers belonging to Number 414 Unit were joined by 53 tractors and 43 trailers of Number 3 Squadron, bringing the regimental strength up to 72 tractors with trailers, and 10 solo tractors. Finally, a further four complete trains were drawn from 'war maintenance reserve' (WMR) bringing the total up

● Gulf War again, but the load here is a Chieftain 'Willich' AVRE (armoured vehicle, Royal Engineers), one of just 17 similar vehicles. The frame across the hull is described as a 'hamper' and can be used to carry, for example, pipe fascines or rolls of trackway.

● Typical Gulf War convoy... note how the overall width of the Commander's semi-trailer actually requires a small amount of the opposing carriageway.

to 76. This figure represented well over half the Army's total strength of tank transporters.

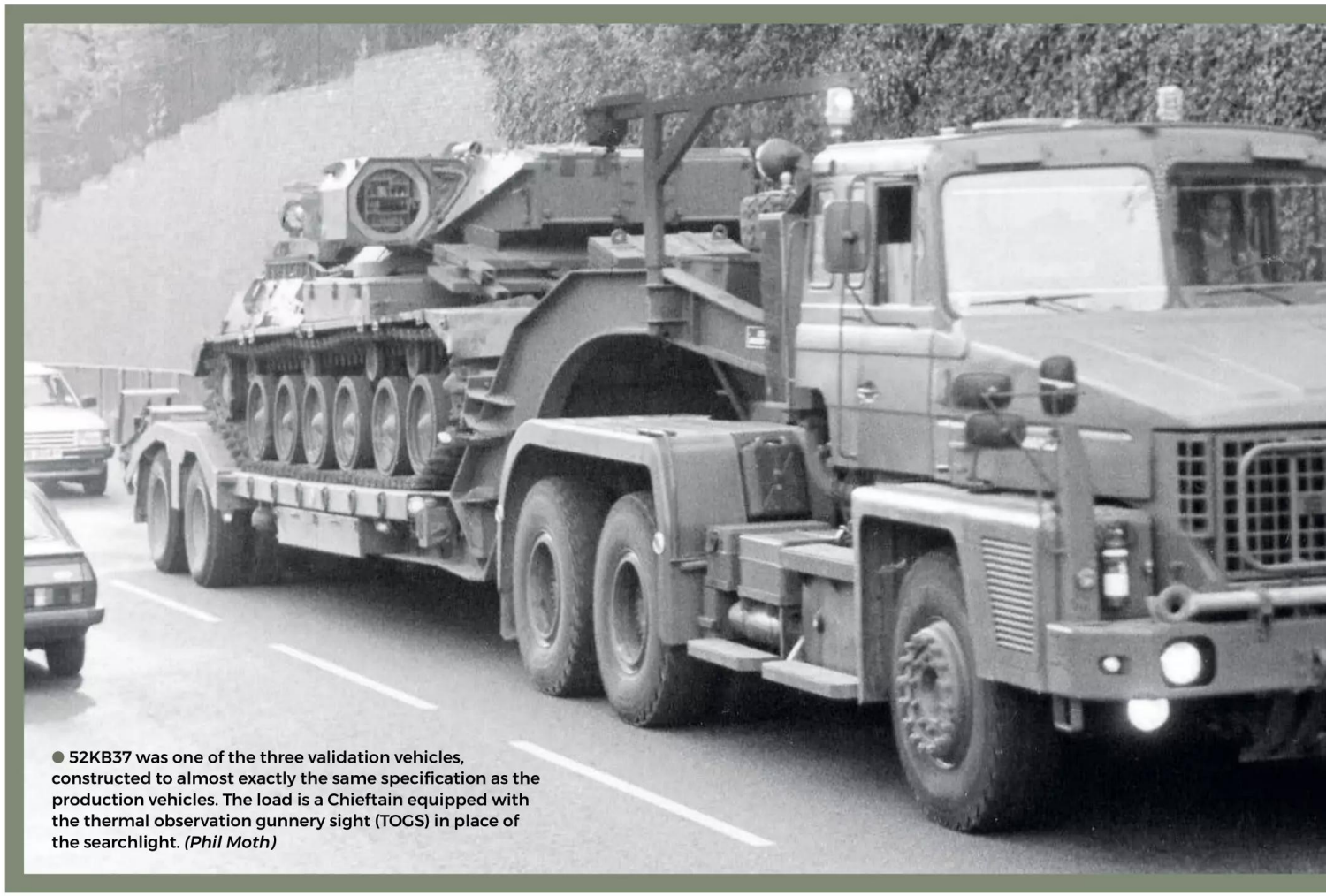
Once in place in the Middle East, the Commander's first task was to move British Challenger tanks from the eastern Saudi port of Al Jubail to forward areas in Saudi Arabia. The lack of suitable rail and road infrastructure in the Middle East meant that, in order to conserve armoured-vehicle track mileage, the Commanders provided the only means of moving armour across the desert. The crew cab was a godsend, allowing one or two crew members to sleep, with the other driving. This gave impressive movement productivity rates, and during one 20-day period, 3000 vehicles of 1st Armoured Division were moved by Number 414 Tank Transporter Unit across a distance of 185 miles (300km).

For four months the Commanders appeared to roam the desert, working 17-hour days in extremes of temperature, and moving everything ranging from the heaviest up-armoured Challengers, AVREs and AVLBs, rigged and ready to fight, to the relatively-lightweight FV432 or CVR(T) series, which were generally loaded in pairs using auxiliary loading ramps that practically put the forward vehicle up on the trailer swan neck. In fact, the only vehicles that were not loaded in pairs, were the Challengers, Chieftains and Warriors. Wherever possible, armour was carried 'live'... meaning fuelled, armed, unrestrained, and complete with crews, ready to fight... the trailer loading ramps were held in the appropriate position with nylon ratchet straps allowing tanks to drive straight off the trailer, breaking the straps, and thus be ready for action with no delays.

Commanders were also called upon to assist the US Army and US Marine Corps with hundreds of tank and heavy artillery movements, supplementing the US military's Oshkosh M911 tractors and commandeered Kenworth oilfield support trucks.

Throughout the period of the war, the tank-transporter squadrons worked hard to ensure that the Division always had access to fresh armour and tank crews, and, at no time did the Commander's apparent lack of off-road abilities hold them back. Each of the Commanders of the British 1st

● The massive size of the Commander means that a fitter must climb onto the wings or actually get into the engine compartment to perform work... but there's no denying the ease of access provided by the one-piece engine compartment cover.



● 52KB37 was one of the three validation vehicles, constructed to almost exactly the same specification as the production vehicles. The load is a Chieftain equipped with the thermal observation gunnery sight (TOGS) in place of the searchlight. *(Phil Moth)*

● Dealing with a front-wheel puncture.

Armoured Division clocked-up 15,000 miles (25,000km), or 170 miles (270km) a day for the entirety of their four-month deployment. During this time the fleet undertook 8000 individual lifts, moving more than 40 different types of vehicle, and covered a combined distance of 1.25 million miles (2 million km) with the vehicles achieving an availability figure of 85%.

But, back home, it seems that all was not well. In April 2002, the Defence Correspondent of the *'Daily Telegraph'* reported that the Army was so short of mechanics that many of its vehicles were not fit for the road. He particularly noted that the Commanders were not getting any younger, stating that the 'ageing Scammell Commander was due for replacement in 2004' and was said to be 'unable in all circumstances to comply with current and future legislation'. It would seem that the Commander was reaching the end of its particular road.

Nevertheless, in 2003, Coalition troops returned to the Middle East as part of Operation Telic, with 32,000 personnel and 15,000 vehicles supplied by Britain, including Commanders. Operation Telic was the name given to the Coalition campaign to depose Saddam Hussein... in the words of George W Bush, the aim was to 'to disarm Iraq of weapons of mass destruction, to end Saddam Hussein's support for terrorism, and to free the Iraqi people'. Almost two decades later, we all know how that went, and we all know that, in fact, there were no 'weapons of mass destruction'. But, the Commanders played their part in contributing to the 'shock and awe' strategy that was intended to reduce Iraq's will to fight through a display of overwhelming force.

The war was mercifully brief, and during Operation Telic the Commanders had an overall availability of ±95%, some 10% higher than the original figure achieved during the first Gulf War, and the highest figure for any vehicle involved in the operation... so much for the view of the 'Daily Telegraph's' correspondent.

Commanders in other theatres

Operation Grapple, established in 1992, was an attempt to demilitarise areas of Bosnia, formerly part of Yugoslavia. Tank transporters from Number 3 Squadron formed part of a composite

unit located at Split. A second phase of the operation was initiated in April 1993, with elements of Number 7 Tank Transporter Squadron.

In June 1995, in an operation described as Resolute, Commanders from Number 16 Tank Transporter Squadron were sent to Bosnia-Herzegovina to transport Chieftain AVLBs and AVREs of the Armoured Engineer Squadron. Six months later, the UN handed responsibility for Bosnia to NATO and more Commanders were deployed, now with the cab marking 'IFOR' (implementation force). The tank-transporter strength in Bosnia was subsequently increased from one section to a squadron, with the tasks rotated between Numbers 3, 16, and 19 Squadrons. The Commanders travelled a total of 585,000 miles (942,000km) in Bosnia between 1 January and 31 October 1996, and during the last month of the operation, December 1996, Number 19 Squadron moved 28 Challengers and 34 support vehicles of the Queen's Royal Hussars from Catterick to Teesport for onward shipment to Split in icy, snowy conditions. The task was repeated, but from Split to Catterick, some months later.

Final withdrawal of British troops from Bosnia did not take place until 2007.

It was also 1995 when white-painted Commanders of the British Logistic Battalion (BRITLOGBAT) were deployed to Angola as part of the tri-service Operation Chantress operating with the United Nations Protection Force (UNPROFOR). The UN forces were attempting to restrain the two sides in the Angolan civil war.

'Hands across the ocean'

In West Germany, Number 7 Tank Transporter Regiment built-up a strong friendship with the US Army's 377th Transportation Company based at Mannheim, and particularly with 28th Transportation Battalion, the only tank-transporting units in the American Sector.

The relationship included visits, joint training and familiarisation, and tasking to support armoured moves. Although the US Army was more dependent on movement of tanks by rail, the M911 heavy equipment transporter (HET) did not fare well in comparison

● The load here is the M270 multiple launch rocket system (MLRS), one of 42 operated by the Royal Artillery.

● Another Gulf War photograph showing a Chieftain armoured recovery vehicle (ARV) with a fascine bundle consisting of plastic pipes, and a roll of Class 60 trackway.

● Commander ballast tractor belonging to Number 16 Tank Transporter Squadron being used to recover an old tank hull during a training exercise.

to the Commander. US Crews were apparently particularly impressed by the Commander's sleeper cab and the ubiquitous electric boiling vessel that enabled the Commander crews to heat food or make a hot drink.

Tank-transporter crews

A tank-transporter crew in peacetime consists of just two men: in times of war this would have been increased to a level of 2.5... not by cutting anyone in half, but by increasing the number of men involved in a troop. During the Gulf War the Commander crews were increased to three.

Army trade qualifications for tank transporting are graded A1, A2 and A3, and at the time the number of tank-transporter tradesmen was 462.

An A3 tradesman is qualified to take charge of the winch and is permitted to load a dead tank; at level A2, the soldier is able to take full responsibility for the tractor unit, and those who have qualified at level A1 are permitted to drive tanks on and off the trailer... always providing they had a 'Category H' track-layer licence. It can take up to six years to progress through the three stages and, regardless of their role, all tank-transporter crews have to undergo six days weapon training a year.

For the tank-transporter crews, the Commander was an order of magnitude better than the ageing Antars... no more would the convoy be held up because the third differential on the old Antar had 'let go' again on the long slow climb out of the barracks. The view of the road was excellent, with the driver's eyes some 11 feet (3.6m) above road level. What's more, the noise levels were reduced, leading to lower fatigue levels, and, at the same time, the creature comforts were considerably improved.

On the move

You might imagine that loading and driving a Commander would be easy. Sure, it's a big beast and you need to use the mirrors a lot but, there's plenty of power assistance... how difficult can it be? Well, as it turns out, it actually is a bit trickier than you would think. I remember being invited to drive a Commander across the parade square at Ward Barracks back in 1999. I seem to recall that it was rather like piloting a small semi-detached bungalow, where

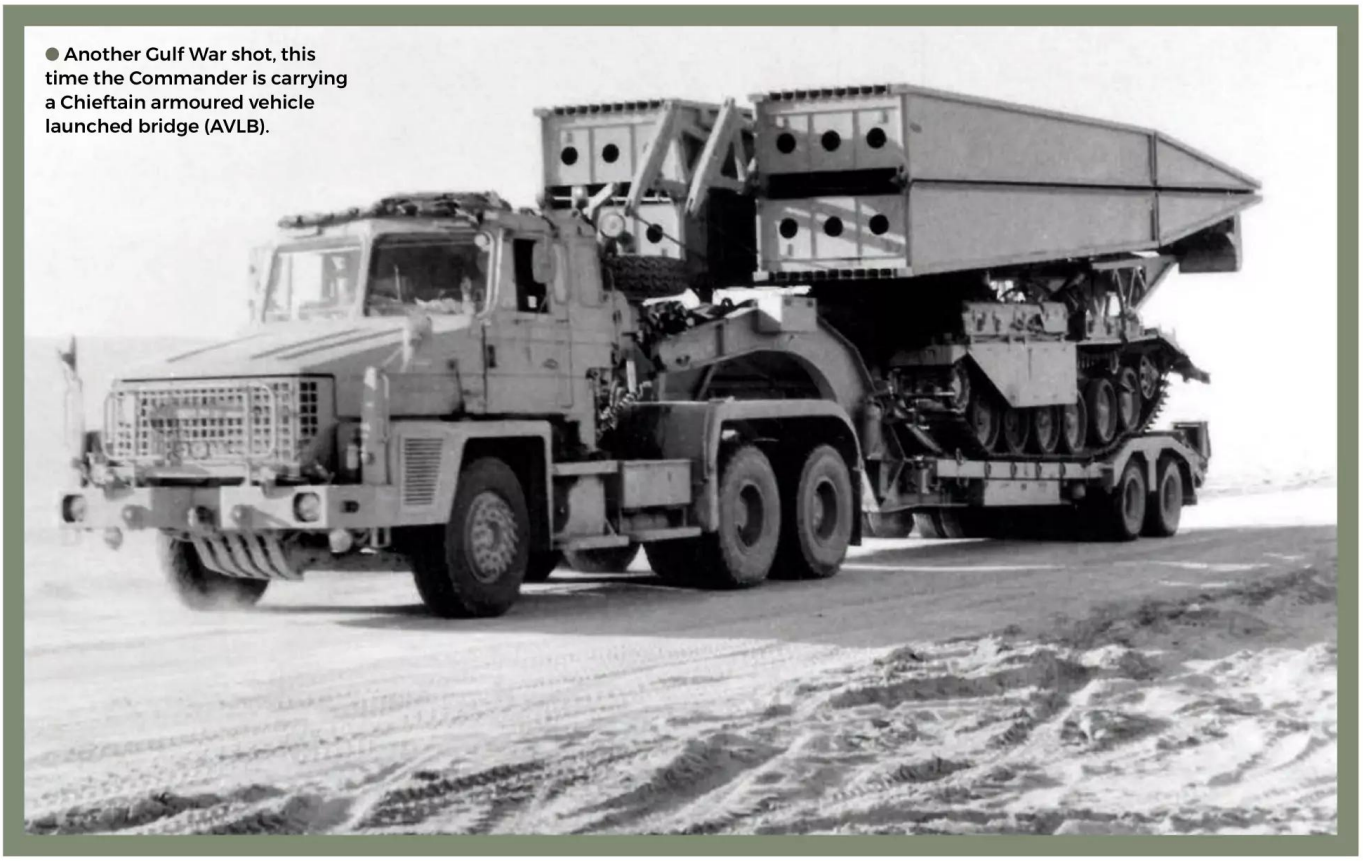
● Viewed from the rear, the sheer size of the Commander and semi-trailer becomes obvious.

● Although it was not the first vehicle to be completed or delivered, 52KB41 was the lowest numbered production Commander and was in service with Number 3 Tank Transporter Squadron based at Antwerp Barracks, Sennelager.

● The Commander is dwarfed by the Chieftain armoured vehicle launched bridge (AVLB) carrying a Laird number 9 tank bridge.

● 52KB80 was a mid-production Commander, seen here with a Chieftain load. *(Phil Moth)*

● Loading a Chieftain main battle tank.



● Another Gulf War shot, this time the Commander is carrying a Chieftain armoured vehicle launched bridge (AVLB).

you are in the living room and the engine and transmission are next door!

But for those who drove such machines for a living... firstly, there was the business of getting 70 tonnes of combat-ready Challenger 1 actually onto the trailer. This was not a process for the faint hearted. Before loading, the tank had its main gun rotated to the rear and secured into the clamp, then the tank and trailer needed to be lined up ready for loading. With one of the transporter crew members standing on the cab roof, the tank driver – who could have been a member of the transporter crew, providing he was a graded A1 tradesman, applied his right foot heavily to get the tank up and onto the ramps, and then hastily applied his left foot to the brakes as the tank dropped down onto the trailer bed in order to prevent crashing into the swan neck. During most of this process, the tank driver could see nothing of where he was going which is why there was a crew member standing on the roof... using hand signals to tell the driver whether to come forward, go back, go left or right, or, most importantly, to stop!

And then all that was necessary was to raise and secure the trailer ramps – unless you were in the Gulf and planning to run straight-off the trailer

● Photographed in Bosnia, this Commander of the SFOR force is carrying a Dutch Army Krauss-Maffei Krupp Leopard tank. *(Shaun Connors)*

into a firefight, in which case the ramps would have been secured in an upright position by nylon ratchet straps – and then lash the tank safely into position on the four lashing points, two at the front and two at the rear, using threaded turnbuckles.

Loading two small vehicles was, if anything, more difficult since the first one onto the trailer needed sufficient 'welly' to get it up the auxiliary ramps at the front end, where there was minimal stopping distance. And loading a disabled vehicle required the use of the winch, or if no braking was available, a second tractor needed to be available to provide a second winch.

And, unloading, as all of the best manuals will tell you, is the reverse of this process. In truth, it was no easier!

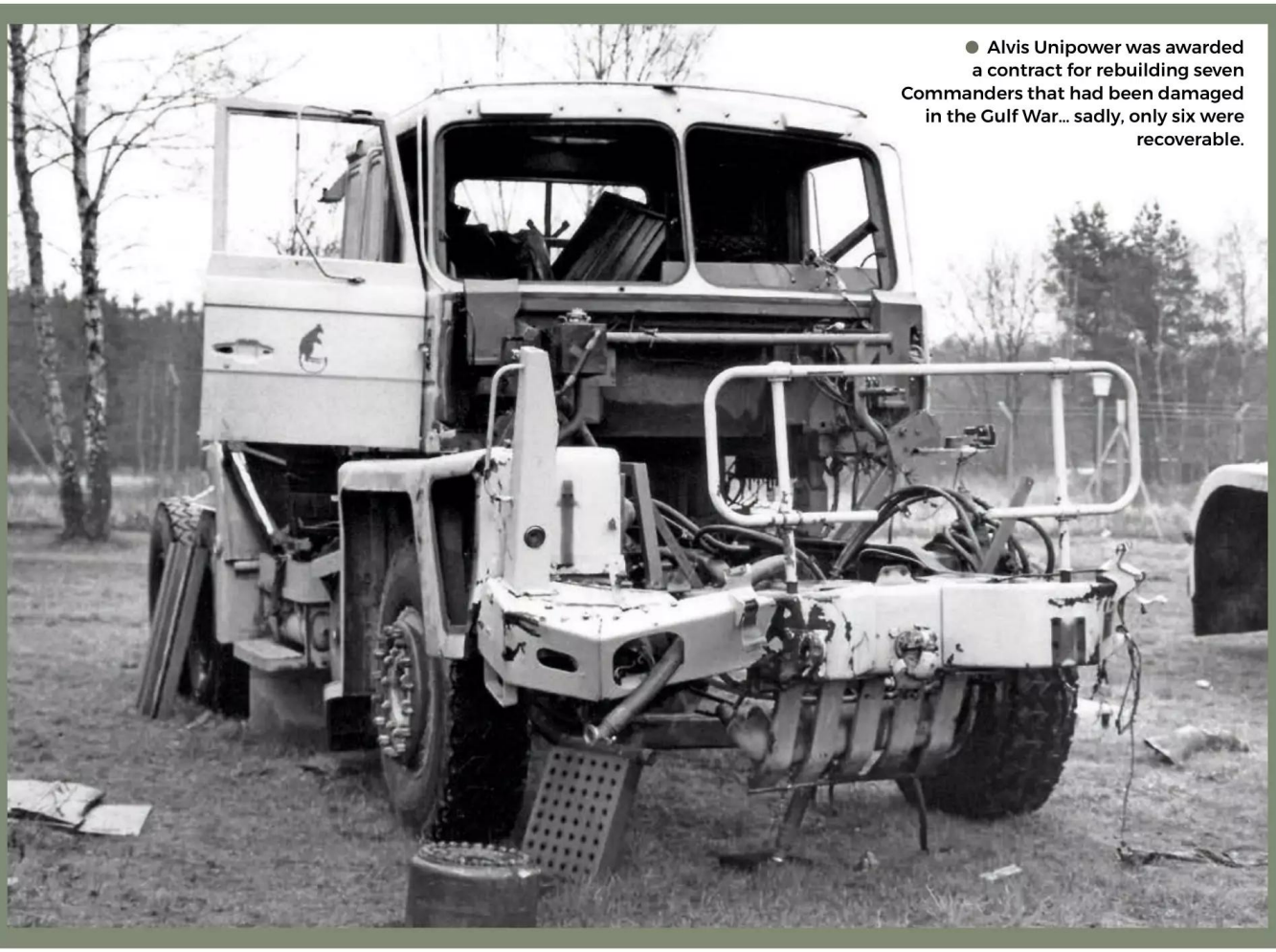
Anyway, loading and unloading is one thing, but actually moving a convoy of loaded – or for that matter, unloaded – tank transporters on the road presents something of a logistical problem. Any convoy was always accompanied by out-

● Bosnia again, and this well-loaded Commander is carrying two armoured vehicles of the FV432 series. *(Shaun Connors)*

● Another SFOR Commander carrying a Dutch Army Leopard. *(Shaun Connors)*

● Painted white and assigned to NATO, this Commander forms part of the British Logistic Battallion (BRITLOGBAT) in Angola in 1995. *(Crown copyright)*

● A Commander of the British Army's 7th Armour Brigade being unloaded from the Danish cargo ship '*Dana Cimbria*' at King Abdul Aziz Naval Port during Operation Desert Shield.



● Alvis Unipower was awarded a contract for rebuilding seven Commanders that had been damaged in the Gulf War... sadly, only six were recoverable.

riders on Norton Interpol or Honda Pan European motorcycles, whose role it was to hold-up traffic at road junctions and to generally shepherd the convoy along, but nevertheless, it is inevitable that there will be a degree of friction with civilian traffic. Generally, the civilian authorities needed to be informed of the movement of the convoy in advance, with the military waiting for clearance from everyone concerned before the convoy could be given the go-ahead.

As to the selection of routes, well, typically, a squadron would maintain a set of maps covering all of the likely routes, marked with height and width restrictions, turning circles, road works, weak bridges, soft verges, hidden culverts, and power lines. This allows routes to be properly planned in advance with minimum disruption to traffic and with a minimum chance of getting caught out by an obstacle of some description. The use of previously unfamiliar roads would have required motorcycles to reconnoitre the route in advance.

And finally, although it is true that there were a lot less Commanders than there had been Antars, because operational movements were typically faster and more reliable, there was no negative effect. For example, the journey from Bulford to the ranges at Castlemartin in Pembrokeshire took just two days where previously it had required three... and, as a bonus, there was a reduced demand for maintenance.

Mid-life rebuild

In January 1992, after the Gulf War, Unipower was awarded a contract for the repair and refurbishment of an undisclosed quantity of Commander tractors – which later turned out to be seven – that had been badly damaged during the fighting. The work, which was carried out at Dudley in the West Midlands, involved the strip-down of the trucks followed by reassembly using new or refurbished parts.

Particular problems were encountered regarding the cabs since the press tools for these had been sold to South Africa where they had been modified, and doors, for example, had to be remade in Britain to enable them to fit the existing structure of the cab. Unipower suggested that it might be possible to fit entirely-new cabs based on a variation

● The damage was caused by a variety of incidents, including fire, landmines and collision.

● The rebuilding work was undertaken at Alvis Unipower's Dudley facility in the West Midlands.

● 53KB25 showing significant damage to the steering gear and to the bodywork. Note how small components such as the light covers and door handles have been 'liberated', presumably to keep other vehicle road-worthy.

● A sad sight indeed!

of the space-frame design used for the company's BR90 bridging vehicle but, interesting though it would have been, this plan was not adopted.

Unipower was able to rebuild six of the seven damaged tractors, but was not asked to undertake any further rebuilding work.

The contract for rebuilding those Commanders that had not been damaged in the Gulf, all of them tired after their arduous service, was awarded to the Army Base Repair Organisation (ABRO). Since 1993, ABRO had been operating as a quasi-privatised organisation with its headquarters at the military base in Andover. The rebuilding work on the Commanders was carried out at Bovington, and eventually every Commander was put through the mid-life rebuild programme. Whilst it is interesting that no improvements were incorporated into the design during the rebuild – indicating how well Don Pearson and his team had done their job – it was said that the life of the tractors was extended by some 125,000 miles (200,000km).

However, although the Commander's life might have been extended, there were increasing problems with the civilian authorities regarding axle loadings and maximum speeds when operating tank transporters in West Germany. It was obvious that the existing Cranes semi-trailers could not handle the 72-tonne weight of the Challenger 2 tank, which was scheduled to start entering service in 1998, within existing loading restrictions.

In 1997, the MoD started to contemplate how the Commander might be replaced.

Farewell to the Commander

The planned life for the Commander was always said to be 20 years, and the beginning of the end came in December 1997 when the MoD issued invitations to submit outline proposals for its replacement to a number of interested parties. These included Econofreight, Multidrive, and Lex Service, as well as consortia headed by Mercedes-Benz, Serco with MAN Truck and Bus, and Alvis Unipower, and, finally, to a joint venture company comprising Brown & Root and Oshkosh Truck operating as Fasttrax. Initially said to be worth £290 million, the contract was the first use of the so-called Private Finance Initiative in the defence industry, calling for 92 transporters and semi-trailers to be owned, operated and maintained over a 20-year period – some say 22 years – by

● Fresh from service with the stabilisation force (SFOR) in Bosnia-Herzegovina, this war-weary Commander has been stripped for a rebuild. *(Crown copyright)*

● In all its glory... a factory-fresh Commander ready for service.

the successful contractor. Econofreight and Multidrive both pulled out without completing the proposal, but the remaining consortia were due to submit their outline proposals in early 1998. By 2001 just two companies remained in contention... Alvis Unipower, who believed that they had a good shot at the contract with their innovative MH-8875 tractor, combined with a 12-wheeled Nicolas semi-trailer, and Fasttrax, who were proposing an upgraded and more powerful version of the US Army's Oshkosh M1070 tractor, with a British-designed King 14-wheeled semi-trailer.

In December 2001 it was announced that the contract had been awarded to Fasttrax. Deliveries of the Oshkosh

MoD REGISTRATION NUMBERS

Tractors	
Development vehicles	06SP02, 06SP04
Validation vehicles	52KB36-52KB38
Production vehicles	52KB41-53KB62

Semi-trailers	
Development semi-trailers	06SP03, 06SP05 (06SP05 was subsequently re-registered 06HH73)
Validation semi-trailers	52KB39-52KB40
Production semi-trailers	53KB63-54KB75

● Looking slightly the worse for wear and already being robbed for parts, this trio of Commanders are still wearing their 'Desert Rats' Gulf War colours. *(Leicester Modellers)*

● Prototype for the Commander's replacement... the Oshkosh M1070F. The extended engine compartment, which was redesigned for production vehicles, was made necessary by the adoption of a Caterpillar six-cylinder 18-litre C18 turbocharged engine in place of the shorter Detroit Diesel 8V-92TA turbocharged V8.

TYPICAL COMMANDER LOADS

Vehicle		Description	Date into service	Notes
Gun tanks				
Challenger 1	FV4030/4	main battle tank; 120mm gun	1983	
Challenger 2	FV4034	main battle tank; 120mm gun	1998	
Chieftain	FV4201	main battle tank; 120mm gun	1959	
Leopard 1	-	main battle tank; 120mm gun	1965	West German
Leopard 2	-	main battle tank; 120mm gun	1979	West German
Engineer tanks				
Centurion AVLB	FV4002	armoured vehicle launched bridge	1960	
Centurion AVRE	FV4003	armoured vehicle, Royal Engineers	1963	
Centurion BARV	FV4018	beach armoured recovery vehicle	1960	
Centurion bulldozer	FV4019	armoured dozer	1962	
Challenger ARRV	-	armoured repair and recovery vehicle	1989	
Chieftain ARV, ARRV	FV4204	armoured (repair and) recovery vehicle	1974	
Chieftain AVLB	FV4205	armoured vehicle launched bridge	1974	
Chieftain AVRE	-	armoured vehicle, Royal Engineers	1987	
Leopard ARV	-	armoured recovery vehicle	1965	West German
Artillery				
Braveheart	AS-90	self-propelled gun; 155mm gun	1992	
M107	-	self-propelled gun; 175mm gun	1963	
M109	-	self-propelled howitzer; 155mm	1963	
M110	-	self-propelled howitzer; 203mm gun	1963	
SP70	-	self-propelled howitzer; 155mm gun	1973	trials only
Other vehicles				
CET	FV180	combat engineers' tractor	1976	
CVR(T)	FV100 series	combat reconnaissance vehicle, tracked	1970	two to a trailer
FV430 series	-	personnel carrier, command post, ambulance, etc	1963	two to a trailer
MLRS	M270	multiple launch rocket system	1983	USA
Warrior	FV510	infantry fighting vehicle; 30 or 40mm gun	1984	

started in 2002, with the new vehicles issued to tank transporter squadrons from July 2003, and, within a year, all of the Commanders had been withdrawn from service and replaced by the Oshkosh M1070F.

The final convoy of Scammell Commanders left 19 Tank Transporter Squadron on 14 May 2004 after more than 21 years of hard service during which these magnificent trucks had seen service in West Germany, Iraq, Bosnia and Kosovo as well as participating in major exercises. Needless to say, a small ceremony was held to mark this milestone, watched by all of the available personnel as the Commanders left Ward Barracks for the last time, *en-route* to Ashchurch.

● The other serious contender for the Commander's replacement was the Alvis Unipower MH-8875, trialled with a Nicolas 12-wheeled semi-trailer.

PENSIONED-OFF

The Commander... and the Challenger 1... find a new life in the sun

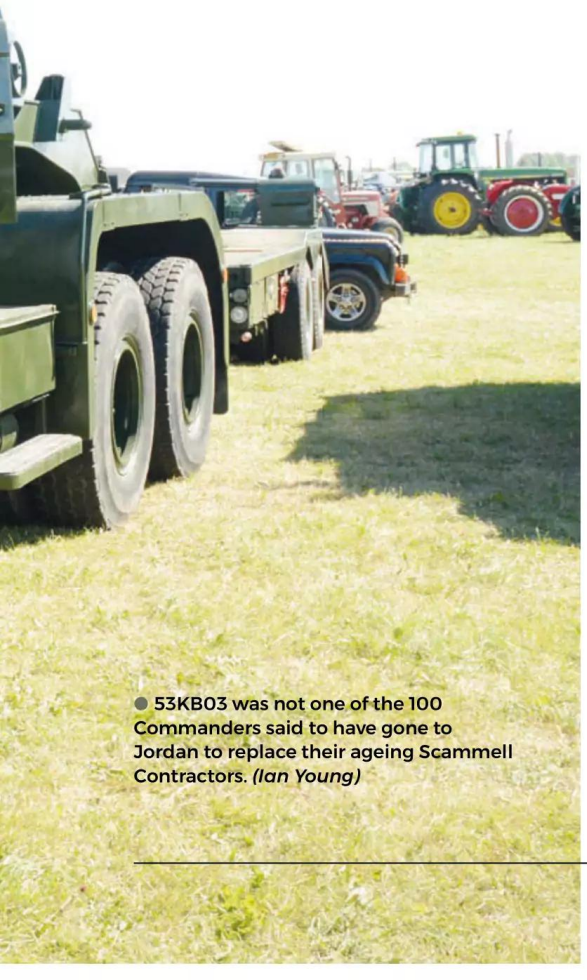
By the year 2002, British armed forces had completely replaced the Challenger 1 main battle tank with the much-improved Challenger 2. Four years earlier, in March 1999, as the Challenger 1 variants were starting to be withdrawn from service, Labour Defence Secretary, Geoff Hoon, brokered a deal to supply 288 of these tanks to Jordan where they would replace the Centurion-based Tariq main battle tank, assisting with the modernisation of the Royal Jordanian Army. In October 2002, following a request by King Abdullah 2, a further 100 Challengers were gifted to Jordan, bringing the total to almost 400 tanks plus spare parts... a kind of 'buy two, get one free' offer!

Although they are now coming to the end of their useful life, the Challengers, which have been renamed Al-Hussein, have been upgraded and up-gunned at the King Abdullah 2 Design and Development Bureau (KADDB). The major change consists of the removal of the Royal Ordnance 120mm L11A5 gun, which uses a separate bagged charge, to be replaced by a Swiss RUAG Land Systems 120mm smooth-bore compact tank gun (CTG) which accepts more modern ammunition. Thermal imaging sights have also been installed.

But, it wasn't just the tanks that went to Jordan... after all, if you have the tanks you really need some way of moving them around. It was rumoured at the time that 100 Commander tractors were either gifted to Jordan, to supplement or replace their ageing Scammell Contractors, or sold to them at a nominal price... said to be just £1. Indeed, the MoD accounts for the year 2004-5 show a loss of £515,000 'on the disposal by sale of Scammell Commander assets to the Jordanian armed forces'. The figure apparently also included a net loss of £162,000 in

● ABOVE Lurking in the background... the shape of things to come!

● RIGHT Four somewhat battered Scammell Contractors of the Royal Jordanian Army.



● 53KB03 was not one of the 100 Commanders said to have gone to Jordan to replace their ageing Scammell Contractors. *(Ian Young)*

2003-4 relating to assets transferred at that time, giving a total of £677,000. The MoD argued that this represented value to the British taxpayer since no costs were incurred in scrapping the equipment!

However, it seems that not all of the tractors went to Jordan. Three (52KB83, 52KB85 and 53KB03) are known to remain in Britain, possibly the property of the REME Museum, although the internet is abuzz with rumours regarding their provenance. One, said to have been the last tractor at Ward Barracks, Bulford, apparently escaped being sent to Jordan by virtue of being in pieces at the time, whilst the other two have served as gate guardians at Catterick Garrison and at Gale Barracks, Aldershot. Nevertheless, all three have been seen together in public at the Great Dorset Steam Fair. I have also heard

● 53KB03 again, this time with a Mk 3 Thornycroft Antar on the semi-trailer. *(Ian Young)*

● ASAM Models' Commander in the distinctive white colour of the UN, but with the wrong registration number... 34KA10 actually belongs to a Challenger 1 tank.

● ASAM Models' ballast tractor in the colours of the first Gulf War, complete with a complement of weights.

● ASAM Models' complete tank-transporter train, consisting of a Commander tractor and Cranes semi-trailer at 1:48 scale.

it said that one of the pre-production vehicles passed into private hands some years ago, and maybe one other production vehicle.

Face the truth though... these stories are hard to confirm, but it is certainly true that no Commanders were sold or used commercially, despite Scammell's best efforts. Heaven knows we would all have been delighted to see one in the distinctive red and yellow livery of Wynns or ALE. But, if you are keen to acquire a Commander you are going to have to wait until Jordan decides they no longer need them, and then hope that at least a small number make it back to Britain, which would seem very unlikely. And remember, even if you do get your hands on one, the Commander is a monster! With an overall width of 124in (3150mm), these trucks are over-sized for normal highway use, and require routes to be approved in advance. When on the road, the tractors must display 'wide load' warning signs and be accompanied by out-riders.

In the meantime, you can content yourself with a scale model or two. As always, Accurate Armour offer the best models, with both the fifth-wheel tractor

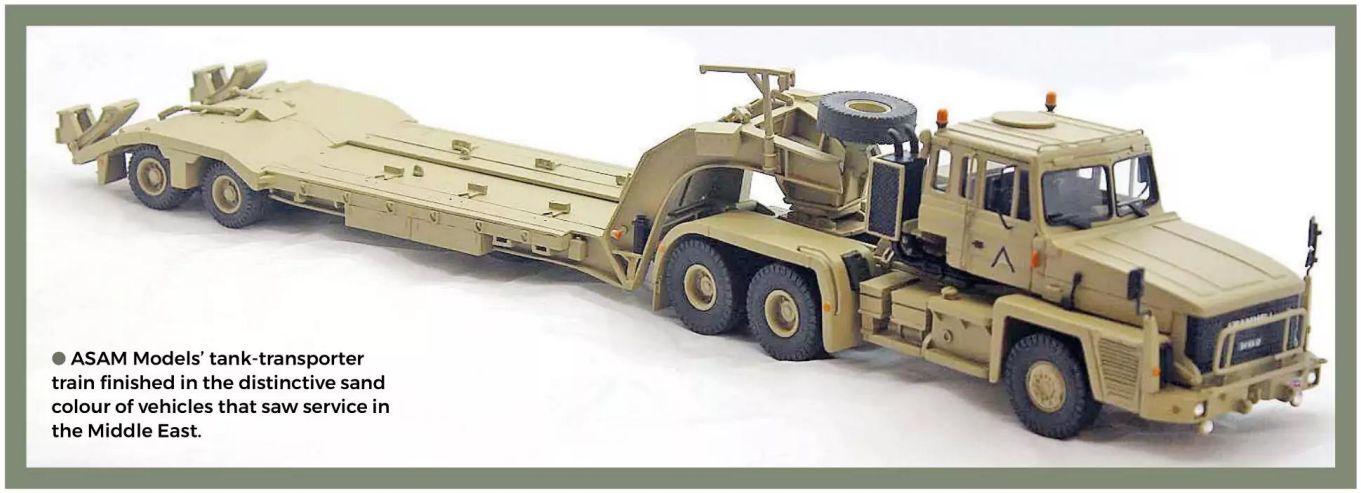
● Three Commanders remain in Britain, possibly the property of the REME Museum. *(Ian Young)*

● ASAM Models' Commander tractor... 52KB48 was the eighth production vehicle to be assigned a registration number.

● ASAM Models' fifth-wheel Commander modelled at 1:48 scale.

and semi-trailer, and the ballast tractor available. Take a look at the following:

- Accurate Armour, both fifth-wheel and ballast-bodied variants, with and without semi-trailer; kit numbers K060, K060T, K095; cast resin and etched brass; scale 1:35
- ASAM Models; models available in various finishes, including 'fantasy' Code 3 liveries for ALE, Econofreight, and Wynns; cast resin and etched brass; scale 1:48
- Cromwell Models, complete with semi-trailer and Challenger 1 tank; cast resin; scale 1:76
- MilMod, complete with semi-trailer; kit number MM 072-047; cast resin; scale 1:72
- PG Models, complete with semi-trailer; kit number T01-PG; cast resin; 1:152 scale.



● ASAM Models' tank-transporter train finished in the distinctive sand colour of vehicles that saw service in the Middle East.

● PG Models' Commander tank-transporter train modelled at 1:152 and shown complete with Challenger tank load.

● Accurate Armour Commander ballast tractor with the markings of the UN intervention force (IFOR) that saw service in Bosnia.

● Accurate Armour fifth-wheel Commander modelled at 1:35 scale.

Although some of these might not still be in production, with a bit of searching on the internet they can probably all be located either used, or as new old stock.

● Clean, straight and almost certainly factory fresh, 52KB70 complete with semi-trailer and load, on display to the public

● ABOVE & LEFT 52KB93 and 52KB70 loaded for transit. Note the width extenders on the semi-trailers to accommodate the Commander's not inconsiderable girth of 124in (3150mm).

THE FINAL WORD

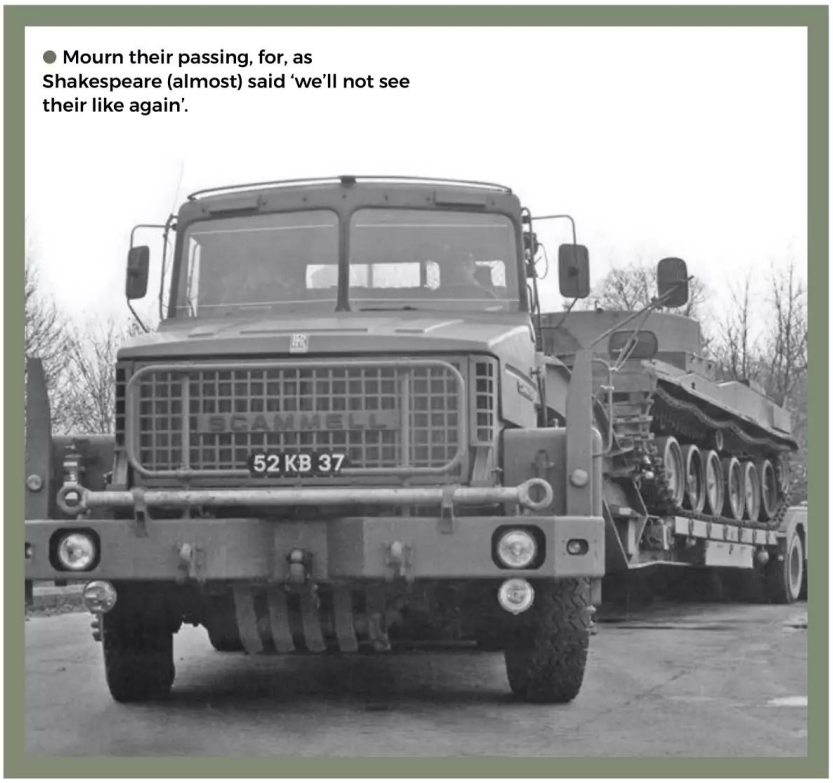
The last chapter for Scammell, the closure of the Watford plant, and the demise of Unipower

On 25 May 1988 the last chassis – a Constructor 8 – to be built at the Watford plant of what had become Special Trucks Limited, started on its way along the assembly line. All future production was moved to Leyland in Lancashire, with support for most older Scammell models provided by Leyland Multipart at Chorley. And, operating from a factory on the Watford Business Park, Unipower purchased the rights to manufacture the rear-engined crash tender, and to provide support for the Commander, Crusader, Contractor, Explorer and Super Constructor, as well as the S24, the LD55 and LD24. Unipower also agreed to provide engineering and parts support for the military Nubian and Nubian Major fire-crash tenders, as well as any Antars remaining in military service.

However, Leyland was adamant that Unipower was not allowed to use the 'Scammell' name.

Vic Wilkes was hopeful that the Scammell plant could be saved and, together with his senior management team, put together a proposal for a management buy-out. This was rejected by the Rover Group and the closure of the plant went ahead at the end of 1988. How ironic then, that at the beginning of 1991, some two years later, Brigadier PAJ Cordingley, commander of 7th Armoured Brigade, wrote these words to Peter Rotheroe, Chairman of Unipower...

'For a long time now I have been meaning to write to you to let you know how Commander is faring out here. It has been the most remarkable success story and you should be immensely proud of the vehicle that you have produced. I only had 20 with me when we first arrived in October (1990), but they were absolutely critical to me to get us into the desert. They worked exceptionally well and they did enormous distances over a long period of time. We now have some 70 in theatre and they are all working extremely hard.'



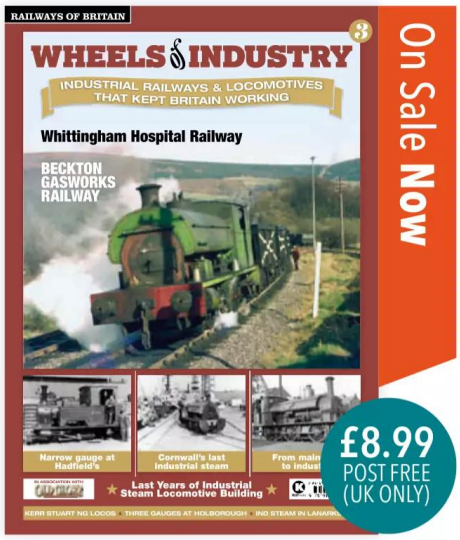
● Mourn their passing, for, as Shakespeare (almost) said 'we'll not see their like again'.

Praise indeed... but it was too late! Scammell was already history, and within two years, Leyland Trucks itself, now operating as Leyland-DAF, also found itself in administration, with only the light- and medium-duty truck business surviving.

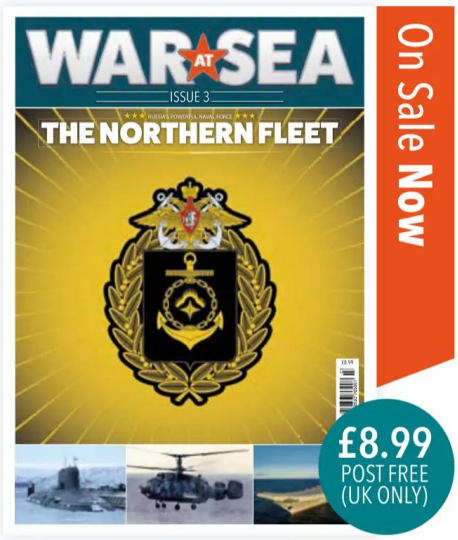
On 25 March 1996 Alvis announced that it had acquired the business formerly conducted by Unipower, which would now be operated under the name Alvis-Unipower Limited. The company's bid for the Commander's replacement, with the innovative MH-8875, was unsuccessful, and a press release dated October 1999 announced that Unipower was up for sale. It is not clear whether there was any interest, but production ceased for lack of orders. In 2002 Alvis acquired Vickers, and two years later, in 2004, Alvis was taken over by BAE Systems. By this time, the Scammell and Unipower names were long gone.

Crane-Fruehauf was slightly more successful, being taken over by General Trailers in 1997, and managing to stay in business in Norfolk until February 2005.

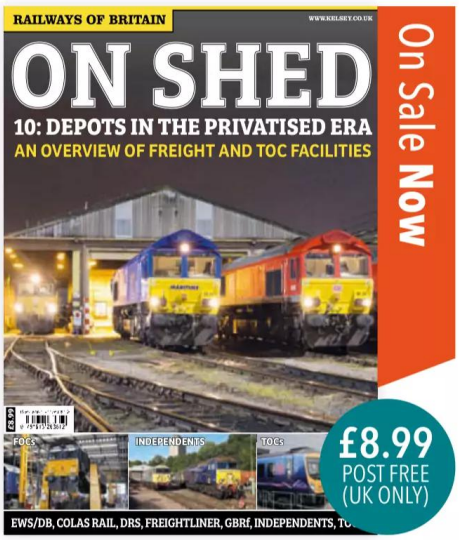
New Bookazines from Kelsey Media

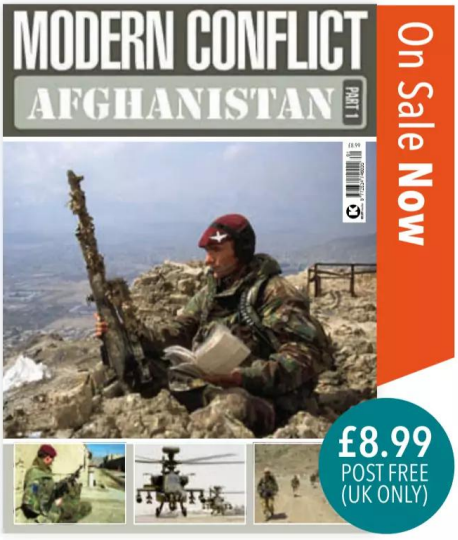

RAILWAYS OF BRITAIN
WHEELS & INDUSTRY
INDUSTRIAL RAILWAYS & LOCOMOTIVES THAT KEPT BRITAIN WORKING
Whittingham Hospital Railway
BECKTON GASWORKS RAILWAY
Narrow gauge at Hadfield's
Cornwall's last industrial steam
Last Years of Industrial Steam Locomotive Building
On Sale Now
£8.99 POST FREE (UK ONLY)

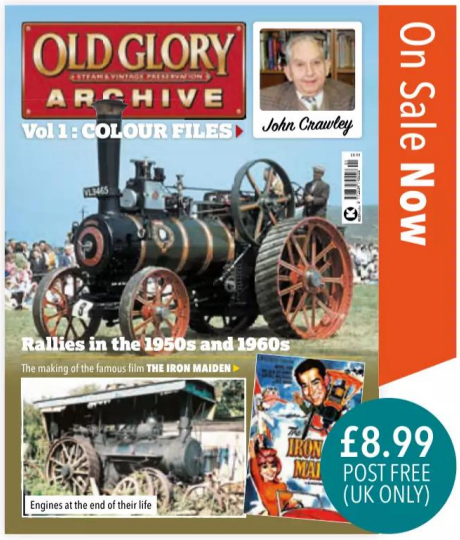
VINTAGE ROADSCENE ARCHIVE
REMEMBERING THE NINETIES
Lorries seen at rallies and road runs during the early 1990s – some still familiar today, maybe in other colours, others rarely seen now
VINTAGE ROADSCENE
On Sale Now
£8.99 POST FREE (UK ONLY)



RANSOMES CONT • ROBEY • RUSTON PROCTOR
TRACTION ENGINES
As they worked, rusted away, and found their way into preservation
PART FIVE
OLD GLORY
THE COLLECTORS SERIES
Ransomes No. 27524
Robey 6hp No. 29330
On Sale Now
£8.99 POST FREE (UK ONLY)






OLD GLORY
ARCHIVE
Vol 1: COLOUR FILES
John Crawley
Rallies in the 1950s and 1960s
The making of the famous film THE IRON MAIDEN
Engines at the end of their life
On Sale Now
£8.99 POST FREE (UK ONLY)

PACKED WITH INFORMATION AND SUPERB PHOTOGRAPHS

WRITTEN BY ENTHUSIASTS FOR ENTHUSIASTS

A4 Format, perfect-bound, 100 pages, full colour and mono archive images

Available from WH Smith High Street stores, selected supermarkets and other leading Newsagents, or Direct from the Publisher;
Call **01959 543747** (Mon-Fri 8.30am-5.30pm) or
On Line from the Kelsey Shop – go to **shop.kelsey.co.uk/bkz**

MILITARY TRUCKS ARCHIVE

DON'T MISS THE NEXT ISSUE OF THIS STUNNING NEW SERIES

OSHKOSH M1070F

Based on the US Army's M1070 heavy equipment transporter, which had started to enter service in 1992, the Oshkosh M1070F was intended to replace the magnificent, but ageing, Scammell Commander.

Work on the vehicle had effectively started back in 1998, when a total of seven expectant consortia had bid, hoping to win the £300 million PFI contract. This was the first time that a defence contract had been let under the so-called 'Private Finance Initiative', a Government scheme that allowed 'off balance sheet' capital expenditure.

The contract originally called for the provision of 120 transporters and semi-trailers, although this was subsequently cut to 92 with an option for the additional 28, which was never exercised, together with 85 fully-trained sponsored reservists who would operate alongside regular army personnel.

By 2001, the number of bidders had been whittled down to just two... Oshkosh, with an up-engined version of the M1070, and Alvis Unipower with an eight-wheeled HET variant of

their M Series. Although very different in concept, the two trucks were pitched head-to-head over a trials period that covered almost two years.

Finally, in December 2001, it was announced that the contract had been awarded to the Fasttrax consortium, with the trucks supplied by Oshkosh.

Deliveries of the M1070F started in 2003.

DON'T MISS THIS FASCINATING STORY

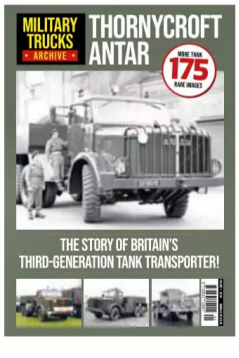
ON SALE 29 JANUARY 2021

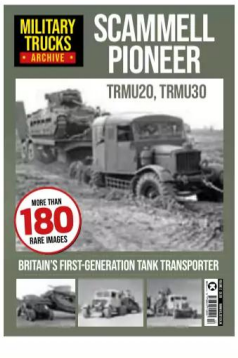
OTHER TITLES AVAILABLE IN THIS SERIES INCLUDE

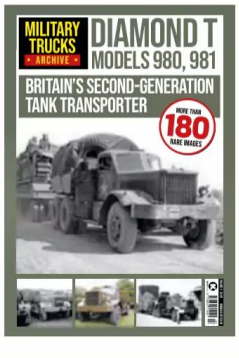
ORDER ONLINE OR BY PHONE

SHOP.KELSEY.CO.UK/ISSUE/MTK

01959 543 747


MILITARY TRUCKS ARCHIVE
THORNYCROFT ANTAR
MORE THAN 175 RARE IMAGES
THE STORY OF BRITAIN'S THIRD-GENERATION TANK TRANSPORTER!




MILITARY TRUCKS ARCHIVE
DIAMOND T MODELS 980, 981
BRITAIN'S SECOND-GENERATION TANK TRANSPORTER
MORE THAN 180 RARE IMAGES